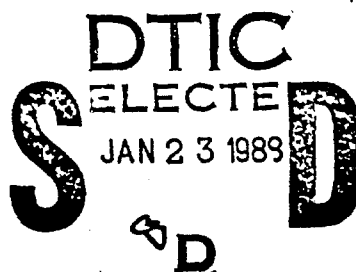


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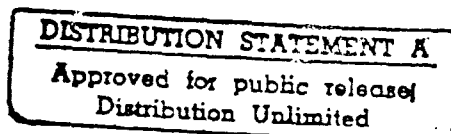
A Graduate Research Project  
Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree

of

Masters of Health Administration

by

Captain James R. O'Keiff, Jr., MSC



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<p>In 1981 at DeWitt Army Community Hospital, an insufficient amount of usable ambulatory care information was being generated. This prohibited the hospital staff from identifying problems and making intelligent decisions regarding the quality of care provided. Short comings in the hospital's Quality Assurance Program had been noted by (ICAH) and General Accounting Office surveys, both highlighted the need for more information. This study attempts to determine the best system for ambulatory care activities to gather information to evaluate the quality of outpatient care being provided. <i>Keywords: Health care facilities, Military medicine, Medical Services. (SDW)</i></p>					
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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS . . . . .	ii
List of Figures . . . . .	v
Chapter . . . . .	
I INTRODUCTION	
Development of the Problem . . . . .	1
Statement of the Problem . . . . .	2
Objectives . . . . .	2
Criteria . . . . .	3
Assumptions . . . . .	3
Limitations . . . . .	4
Research Methodology . . . . .	4
Footnotes . . . . .	6
II LITERATURE REVIEW	
Introduction . . . . .	7
Structure, Process, or Outcome . . . . .	7
Implicit/Explicit Judgement . . . . .	10
Prospective, Retrospective, and Concurrent Assessment . . . . .	11
Conclusion . . . . .	14
Footnotes . . . . .	15
III THE PRESENT AMBULATORY CARE QUALITY ASSURANCE PROGRAM	
General Description of Ambulatory Services at DeWitt Army Community Hospital . . . . .	18
Current Ambulatory Quality Assurance Activities . . . . .	21
Summary of Current Quality Assurance Activities . . . . .	28
Footnotes . . . . .	30
IV IDENTIFICATION OF NEEDED INFORMATION	
Introduction . . . . .	31
Identification of Data Sources . . . . .	43
Methods of Extracting Data. . . . .	47
Developing a Quality Assurance Study . . . . .	50
Concurrent vs Retrospective Audit Procedures . . . . .	55
Criteria Development . . . . .	56
Footnotes . . . . .	58
V DISPLAY OF DATA	
Statistical Techniques . . . . .	60
Hypothesis Testing . . . . .	60
Descriptive Statistics . . . . .	65
Analysis of Variance . . . . .	68
Additional Statistical Techniques . . . . .	72
Data Collection Worksheets . . . . .	81
Summary . . . . .	86
Footnotes . . . . .	88
VI CONCLUSION . . . . .	89

SELECTED BIBLIOGRAPHY . . . . .	92
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# APPENDIX

A. QUALITY ASSURANCE PLAN . . . . .	96
B. PROPOSED QUALITY ASSURANCE STUDY . . . . .	114
C. REVISED QUALITY ASSURANCE PLAN . . . . .	115
D. CORNEAL ABRASION STUDY . . . . .	141
E. FOLLOW-UP, CORNEAL ABRASION STUDY . . . . .	143
F. SURVEY DOCUMENT . . . . .	144
G. CONCERNED CARE FORM . . . . .	145
H. PATIENT REPRESENTATIVE FORM . . . . .	146
I. QA PROBLEM ASSESSMENT WORKSHEET . . . . .	150
J. ONE SAMPLE ANALYSIS . . . . .	152
K. PAIRED SAMPLE ANALYSIS . . . . .	153
L. CHI-SQUARE TEST . . . . .	154
M. RXC CONTINGENCY TEST . . . . .	155
N. TWO SAMPLE T-TEST . . . . .	156
O. ONE-WAY ANALYSIS OF VARIANCE . . . . .	157
P. TWO-WAY ANALYSIS OF VARIANCE . . . . .	159
Q. MULTIPLE LINEAR REGRESSION. . . . .	161

## TABLE OF FIGURES

1	Clinic Organizational Chart . . . . .	20
2	Flow of Information of Committees . . . . .	23
3	Most Common Diagnosis/Complaint . . . . .	33
3.1	South Post Health Clinic . . . . .	34
3.2	Acute Minor Illness Clinic . . . . .	35
3.3	Family Practice Clinic . . . . .	36
3.4	OB/GYN Clinic . . . . .	37
4	Quality Assurance Information Flow . . . . .	54
5	Frequency Polygram and Histogram . . . . .	65
6	One-Way Analysis of Variance . . . . .	71
7	Analysis of Variance . . . . .	73
8	Bar Chart . . . . .	78
9	Line Chart . . . . .	79
10	Pie Chart . . . . .	80
11	Individual Provider Audit Matrix . . . . .	83
12	Summary Audit Matrix . . . . .	85

## CHAPTER I

### INTRODUCTION

#### Development of the Problem

The impetus for the study of the ambulatory care Quality Assurance Program at the US Army Medical Department Activity, Fort Belvoir, Virginia, has been the collective lack of useable information by which the hospital staff can make intelligent decisions regarding the quality of care given by the hospital staff in ambulatory care. Repeatedly, the outcome of quality assurance (QA) related committee meetings, i.e., the Medical Care Evaluation Committee, Ambulatory Care Committee, and other quality assurance functions, was not useful because the committee was unable to identify problems. This inability to identify problems is related to lack of information which the committees have available to them. Although data is present it is either not properly summarized, incomplete, or not communicated in a useful manner. Data by definition is not information due to the fact that it does not convey a complete picture.

The Chief, Professional Services has repeatedly expressed his frustration at the lack of production of useful quality assurance results by the committees, departments, and activities of the institution. In addition, the shortcomings of the hospital Quality Assurance Program have been noted by the Joint Commission on Accreditation of Hospitals (JCAH) on their most recent accreditation visit (June, 1981). Also, the General Accounting Office conducted a five week survey of hospital quality assurance programs and noted shortcomings highlighting the need for more information.

The increasing importance of quality assurance as evidenced by the heightened interest by regulatory agencies, both private and governmental, and the rising expectations of consumers mandates that the administration of hospitals institute effective and efficient quality assurance programs. Major General Raymond Bishop, Commanding General, United States Army Health Services Command, specifically addressed the issue of quality assurance in troop medical clinics and health clinics within the command as being of primary interest.<sup>1</sup> General Bishop expressed grave concern over the quality of care provided in the outpatient setting. In order to assure that the care provided in those settings is optimal he stressed quality assurance programs to measure the efficacy of health care. To validate his interest General Bishop has instructed the Inspector General of Health Services Command to evaluate the quality of health care being provided in the ambulatory care settings throughout the command.

#### **Statement of the Problem**

To determine the best system for ambulatory care activities to gather information to evaluate the quality of outpatient care provided at the US Army Medical Department Activity, Fort Belvoir, Virginia.

#### **Objectives**

The objectives of this study are threefold:

1. To determine the type of information which is needed by outpatient organizations to evaluate the quality of care provided by that clinic. Concurrent with that initiative is the determination of the proper source of the needed information.

2. To develop a methodology for extracting the needed data and converting it to useful information.

3. To create a vehicle for displaying the information.

### Criteria

The criteria by which the results will be evaluated against will include:

1. The methodology for extracting data must be performed by clerical or paraprofessional personnel.

2. The source of the data must be readily available.

3. The methodology for converting data to information must be performed by clerical or paraprofessional personnel.

4. The vehicle to display the information must be standardized so that clerical and paraprofessional personnel can display the information.

5. The information must be acceptable to the clinic/activity/department chief conducting the quality assurance program.

### Assumptions

The course of this study will be guided by several factors which are assumed by the author to be true and will determine whether the study will be viable in the future. Those assumptions are:

1. The need for quality assurance activities will not diminish.

2. Clerical and paraprofessional personnel will be responsible for gathering the data, converting the data to information, and displaying the information.

3. The recommended method for gathering information will be applicable to all outpatient clinics.

### Limitations

The following limitations will be utilized in evaluating this program:

1. High volume clinics will be used as models to analyze and develop the quality assurance activities of ambulatory care activities due to the large number of separate clinics in the hospital.
2. The individuals who will perform the data gathering and other tasks involved in the system will be from existing resources.
3. Additional resources will not be available to the hospital to gather the information needed to assess.

### Research Methodology

In order to fulfill the objectives of the study the following research techniques will be utilized.

1. Identification of needed information.
  - a. Consult appropriate literature.
  - b. Interview the professional staff of the outpatient facility.
2. Identification of data sources.
  - a. Consult with the US Army Biostatistical Agency.
  - b. Investigate the information locally available.
    - (1) The patient health record.
    - (2) Laboratory, radiology, and pharmacy data.
    - (3) Patient representative data.
    - (4) Patient Administration Division maintained data.
    - (5) Uniformed Chart of Accounts data maintained by the hospital comptroller.

3. Method for extracting data.
  - a. Automated systems available by the BioStat Agency.
  - b. Locally maintained statistics, i.e., laboratory, radiology, and pharmacy data.
  - c. Application of statistical techniques such as sampling.
  - d. Need for concurrent versus retrospective data collection.
  - e. Assessing the need for criteria in order for clerical personnel to be able to extract data.
4. Display of data.
  - a. Analyze the nature of the data collected and determine the most appropriate type of display. Possible alternatives would include:
    - (1) Descriptive statistics (mean, standard deviation, mode, etc.).
    - (2) Trending as a method to determine abnormalities.
    - (3) Tests of statistical significance, i.e., Chi-squared, T-Test, correlation.
  - b. Develop a worksheet by which the data could be consolidated.
  - c. Utilize currently available statistical packages on the hospital Hewlett-packard minicomputer design mechanism for inputting the data and producing usable information for the clinic chief.

### Footnotes

<sup>1</sup>Major General Raymond Bishop, "Keynote Address," presented at the US Army Health Services Command, Ambulatory Care Conference, Fort Sam Houston, Texas, 29 March 1982.

## CHAPTER II

### LITERATURE REVIEW

#### Introduction

Quality assurance is not a subject for debate, its time has arrived.<sup>1</sup> Verification of the mandate for quality assurance is widely published in federal law, national hospital accreditation standards, and Department of the Army regulations.<sup>2, 3, 4, 5</sup> The impetus for quality assurance activities has been two-pronged. The critical issue in assuring the quality of care provided is improvement of health status of the patient.<sup>6</sup> Concurrent with the need for quality health care is the need to control the rising cost of providing health care.<sup>7</sup> Although the thrust of quality assurance activities has been centered in the inpatient setting there is an overwhelming need to carry the quality assurance banner to the ambulatory setting. The volume of patients seen in the outpatient setting is tremendous, approximately 89% of illnesses are treated in the ambulatory mode.<sup>8</sup> Even though the per patient expense of outpatient care is obviously much lower than an inpatient visit the magnitude of volume of outpatient visits necessitates an evaluation of the care provided. For every person admitted to DeWitt Army Community Hospital 57 patients are seen on an outpatient basis.<sup>9</sup>

#### Structure, Process or Outcome

With the tremendous number of outpatients being seen in an ambulatory mode the target of quality assurance programs heretofore has relied heavily on the structure of the system. Structure refers to innate characteristics of the providers (physicians, dentists, nurses, etc.), such as age, type of medical training and

degree, and practice of the physician.<sup>10</sup> The "structural" approach assumes that given the proper mix of training, age, and experience a provider would fulfill the needs of the patients. The guardians of the "structural" system of assuring care were the members of the medical professions via state boards of licensure, medical societies at the county, state, and national level, and faculties of medical schools. The effectiveness of the structural method is questionable. The increase in malpractice lawsuits, the maldistribution of medical practitioners, and the claims of unnecessary surgery indicate that the effectiveness of the structural method is suspect.<sup>11, 12, 13</sup>

The "process" method of quality assurance activities is centered on the events which occur during a patient encounter. The "process" includes the patient's history, physical findings, laboratory studies, radiographic tests, drugs prescribed, patient instructions, and/or any other intervention which might be considered necessary in treating a particular patient.<sup>14</sup> The process has significant advantages over the structural method in that attention is focused on what occurred during the encounter, not merely how prepared the provider was for treating the patient. The effectiveness of the process review has been demonstrated in several studies. In New Mexico a process review was used to count the inappropriate use of antibiotics. The process review was successful in reducing the frequency of inappropriate use of expensive antibiotics.<sup>15</sup>

The last method of reviewing the quality of care is the outcome method. The "outcome" method is concerned with the net result whether it be cure, control of disease, or symptomatic improvement. The ultimate quest of quality assurance is to improve the health status of the patient. The outcome method focuses on just

that, the health status of the patient. The structural method only certifies the initial competence of the provider and the process method only assesses the fulfillment of measurable inprocess milestones. Neither of these methods assesses the quality of the end product, the patient. The logical question then is why not use "outcome" as the sole measurement of quality? The answer in part is that the great majority of conditions:

- are self-limiting,
- are intimately involved with personal life style,
- are chronic conditions where a good outcome is often temporary arrest of the natural cause or restoration of some function, but is in either case dependent on nursing and social support rather than medical care,
- are conditions for which modern remedies are only partially effective,
- require short-term counseling or reassurance, often effectively practical but generally unrecorded, and
- are uncomplicated, acute infections for which antibiotics are readily prescribed.<sup>16</sup>

In addition, anywhere from 25 to 70 percent of patients coming for care are actually well or "worried well".<sup>17</sup>

The net result of the three methods of assuring quality is individually ineffective in improving the quality of care. There is a place for each of the methods in the overall quality assurance program. The structure of the health care system is well defined by the operating programs of hospitals. They include:

- a credentialing process,
- a training program, and
- an equipment and facilities upgrade program.

The process method is the foundation for the appraisal of the compliance of the professional with established patient care criteria. The existence of imperfections in the process method should be recognized by the professional body. Criticism of the process method is well documented in the literature and is well founded.<sup>18, 19, 20, 21</sup> In light of the shortcomings in the process review methodology, its ability to demonstrate behaviors is critical in order to fulfill the tenets of the accreditation standards espoused by the Joint Commission on Accreditation of Hospitals.

The outcome quality of care assessment method is the optimal method but is the most difficult to define. The health status of an individual includes more than a simple physical assessment of an individual body. The World Health Organization includes in its definition of health status the "complete being" that encompasses the emotional and social as well as the physical aspect of the being.<sup>22</sup> The wholistic movement has brought the "total man/woman" issue to the forefront and as yet this issue is not resolved.<sup>23</sup> In order to avoid the pitfall of attempting to define "improved health status" the basis of an ambulatory care quality assurance program would be wise to recognize the outcome aspect, and focus its efforts on the more tangible aspects of a process orientated methodology.

#### Implicit/Explicit Judgement

The process system can be based on a combination of implicit/explicit judgement and concurrent/retrospective data collection. The difference between explicit and implicit judgement is the pre-establishment of criteria. The implicit judgement is based solely on personal experience and training of the individual

reviewer. The reviewer would audit a medical record and determine whether the proper medical steps in diagnosis and treatment were taken based on his/her opinion of what constitutes quality care.<sup>24</sup> This method of assessing care is extremely flexible but requires a high degree of knowledge on the part of the reviewer and the results are unreliable.<sup>25</sup>

The explicit review relieves the reviewer of the judgmental situations which are incorporated in the implicit system. The explicit review is based on a set of standards which are established by a group of providers before the review and are reduced to writing. This system increases the reliability of the review and allows paraprofessional and clerical personnel to perform the review.<sup>26</sup>

A study conducted by Johns Hopkins physicians of 296 patients at Baltimore City Hospital used both the implicit and explicit methods for assessing the quality of care provided.<sup>27</sup> The diagnosis for these patients was either hypertension, urinary tract infection, or gastric/duodenal ulcer.

The 296 records were reviewed using implicit judgement of the process and the result was that 23 percent of the charts were acceptable. The same charts were then reviewed against explicit criteria, and the result was 1 percent of the records met the acceptability standards. This study points up the wide variation which can exist between implicit and explicit judgement in reviewing medical processes. This variation coupled with the problems of unreliability and expense associated with implicit judgement indicates that explicit judgement is the method of choice.

#### **Prospective, Retrospective, and Concurrent Assessment**

The quality assurance standard of the Joint Commission on Accreditation of Hospitals states that "once an actual or suspected problem is identified, it may be assessed prospectively, concurrently, or retrospectively."<sup>28</sup> In the ambulatory

setting the collection of data needed to conduct reviews or audits of patients encountered is not systematic and centralized as is the case in inpatient care. This lack of a systematic data collection effort severely limits the ability to retrospectively analyze care. With over 1 billion outpatient visits occurring annually in the United States the system for centrally collecting data is not imminent.<sup>29</sup>

The prevalence of quality assurance studies documented in the literature reflect computer assisted data collection techniques.<sup>30, 31, 32</sup> The billing function in private practice has provided a natural index for identifying patient diagnosis and treatment data. In those practices which have automated billing, the practitioners have capitalized on the captured data to identify patients with a specific diagnosis or who have undergone an identifiable treatment. The Harvard Community Health Plan has used a computer stored ambulatory record (COSTAR) system to record patient data. This system significantly improves the efficiency of the plan's quality assurance efforts.<sup>33</sup> The Army Medical Department is currently testing the COSTAR system at Fort Ord, California.<sup>34</sup> The results of the test are not completed and possible proliferation of the COSTAR system through the military hospital system is uncertain.

Without the aid of computerized systems for records retrieval the retrospective audit technique is not a viable method for conducting quality assurance studies. The concurrent audit procedure, which is based on the premise that the chart is reviewed shortly following the patient encounter, is a plausible alternative to retrospective review. The term shortly is used to describe the time

lapse between encounter and review because the actual time can vary from minutes to days. Concurrent review has been used to alleviate the personnel cost associated with records retrieval and to cut the time to complete a study.<sup>35</sup> The effectiveness of concurrent review is not only in the retrieval of records but also in corrective patient intervention.

The Automated Military Outpatient System has been used for over five years in Army hospitals to treat large numbers of outpatients by utilizing paraprofessional personnel to treat minor illnesses. Incorporated in that program is a mandatory concurrent review mechanism.<sup>36</sup> This review not only enables the reviewer to detect general trends in the quality of care provided, but additional specific shortcomings in the treatment of a patient can be rectified by recalling the patient to the clinic. The recall of patients is not practical in a retrospective review since a lengthy time lapse between the time of treatment and the time of review has occurred. Additionally, inappropriate actions by staff members can be quickly stopped. The advantages of ease of record retrieval, recall of patients, and prompt correction of staff deficiencies denote the concurrent review techniques as superior to retrospective reviews in the outpatient setting.

In addition to the retrospective and concurrent assessment techniques, the JCAH refers to prospective assessments. The prospective aspects of quality assurance deals with both the structure of patient encounter and pre-establishment of valid assessment criteria. The structural system has been discussed previously as well as development of explicit criteria. These two factors are important in a quality assurance program but without the concurrent or retrospective review the

effectiveness of the prospective aspects of the program cannot be validated. The prospective methodology cannot stand alone; it must be incorporated into the concurrent or retrospective analysis.

### Conclusion

The need for quality assurance programs is not going to vanish. The thrust of outpatient quality assurance should be on the process of the patient encounter. While recognizing the importance of the structure and outcome portions of the ambulatory care system, the practitioners should insure that the "process" which they can directly affect is optimal. The evaluation of the care provided must be based on clinically valid criteria. Implicit criteria requires an extremely competent reviewer and the reliability of the assessment process is questionable. Explicit criteria enables a lesser trained individual to perform audits and achieve superior assessment results.

In the outpatient setting the inability to efficiently and quickly retrieve patient charts mandates the use of concurrent audit techniques. The ability to promptly intervene in a treatment is a significant positive side effect of the concurrent audit.

In summary, the outpatient quality assurance program needs to focus on the process of the patient encounter, using explicit criteria on a concurrent basis. This triad of principles is not applicable in all situations but any individual conducting a study would be wise to consider their application.

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- <sup>26</sup>Hill, p. 715.
- <sup>27</sup>R. H. Brooks and F. A. Appel, "Quality of Care Assessment: Choosing a Method for Peer Review," New England Journal of Medicine, (June 21, 1973), pp. 1323-1329.
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<sup>35</sup>David Sniff, "The Evaluation of a Quality Assurance Program," Quality Review Bulletin, (January, 1980), pp. 26-29.

<sup>36</sup>U.S. Army Health Services Command, Ambulatory Patient Care Program #13, Fort Sam Houston, Texas, August, 1976, n. B-24.

## CHAPTER III

### THE PRESENT AMBULATORY CARE QUALITY ASSURANCE PROGRAM

#### General Description of Outpatient Services at DeWitt Army Community Hospital

DeWitt Army Community Hospital is located on Fort Belvoir, Virginia in a geographical region which encompasses Virginia, West Virginia, and a portion of the Washington, D.C. metropolitan area. It is a 120 bed hospital which provides primary care to a population of approximately 85,000 beneficiaries. The hospital services include: family practice, general surgery, obstetrics and gynecology, orthopedics, neurology, outpatient psychiatry and social work, pediatrics, dermatology, physical therapy, ophthalmology and optometry, internal medicine, and emergency medicine. The hospital has one residency program in family practice with eighteen residents participating. The average patient census is 97 patients per day and an average of three births occur daily. There are currently 82 physicians assigned to the institution.

The hospital operates 37 separate clinics which together treated 437,826 patients in fiscal year 1981.<sup>1</sup> These clinics vary greatly in location, size, and type of patients seen. The Adolescent Clinic cared for 1,303 teenagers in fiscal year 1981 and the Family Practice Clinic cared for over 46,000 patients in the same time period. In addition to the wide variation in number of patients seen, the clinics also vary greatly in location. Many of the clinics are based in the confines of the main hospital, but some clinics, such as Fort A.P. Hill Health Clinic, 45 miles south of Fort Belvoir, are located off the installation. It is therefore difficult to identify a typical clinic.

The responsibility for the operation of the clinics within the hospital is divided (see Figure 1). The Department of Medicine is responsible for those clinics which are subordinate to the department such as: pediatrics, neurology, dermatology, internal medicine, and cardiology. The Chief of Surgery is responsible for typical surgical specialties: general surgery, obstetrics and gynecology, orthopedics, ophthalmology and optometry, podiatry, and urology. The Department of Family Practice has been given the responsibility for not only the family practice clinic, but also the emergency room, physical examination clinic, and the troop health clinics. The troop health clinics are included under the Chief of Family Practice because the physicians operating these clinics are family practitioners. Additionally, the Chief of Family Practice is responsible for the off post health clinics. To accommodate this increased responsibility, the Chief of Family Practice has the collateral duty of Director of Primary Care and Community Medicine.

Outside of the three major departments there are still outpatient clinics which operate under a variety of names. The Occupational Health Clinic is supervised by an autonomous occupational health physician. The Chief of the Community Mental Health Activity is responsible for the operation of a combined psychiatry/psychology/social work clinic. To further complicate the situation, all nursing personnel who staff the clinics (registered nurses, licensed practical nurses, corpsmen, and operating room technicians) are supervised and controlled by the Chief, Department of Nursing.

The purpose of this discussion is to acquaint the reader with some of the variables involved in discussing the ambulatory care facilities at DeWitt Army

# CLINIC ORGANIZATIONAL CHART

HOSPITAL  
COMMANDER

CHIEF OF  
PROFESSIONAL SERVICES

CHIEF OF MEDICINE	CHIEF OF SURGERY	CHIEF OF FAMILY PRACTICE*	CHIEF OF PREVENTIVE MEDICINE	OTHER
1. Internal Medicine	1. General Surgery	1. Family Practice (Main Hospital)	1. Well Baby	1. Nutrition
2. Allergy	2. Ophthalmology	2. South Post Health** Clinic	2. Audiology	2. Psychiatry
3. Cardiology	3. Ear, Nose, Throat	3. North Post Health** Clinic	3. Occupational Health	
4. Diabetic	4. Urology	4. Davison Army Airfield Clinic **	4. Community Health Nursing	
5. Hypertension	5. Gynecology and Obstetrics	5. Acute Minor Illness Clinic		
6. Dermatology	6. Orthopedics	6. Physical Examination		
7. Neurology	7. Orthopedic Appliance Clinic	7. Emergency Treatment Clinic		
8. Pediatrics	8. Podiatry	8. Vint Hill Farms Health Clinic		
9. Adolescent	9. Optometry	9. Fort A. P. Hill Health Clinic		

\*Chief of Family Practice is also the Director of Primary Care and Community Medicine.

\*\*These clinics are troop medical clinics in the mornings and family practice clinics in the afternoons.

FIGURE 1

Community Hospital. The clinics are dispersed, the supervision of the clinics is not centralized, and the types of patients seen at each of the clinics is slightly different depending upon the speciality of that clinic.

#### Current Ambulatory Quality Assurance Activities

The current outpatient quality assurance program at DeWitt is difficult to define since there is a complete lack of direction and organization to the process. When approached on the subject, the personnel in the clinics state that either it is not done or some type of medical chart review is being conducted. Those doing chart reviews have no documentation of what has been done, what was found, or what action was taken to correct deficiencies noted. The basic ground rules of the Joint Commission on Accreditation of Hospitals on quality assurance:

1. Problem focused,
2. Objective assessment,
3. Implementation of corrective action,
4. Monitoring of corrective action,
5. Documentation of the program's effectiveness, and
6. Cost effectiveness

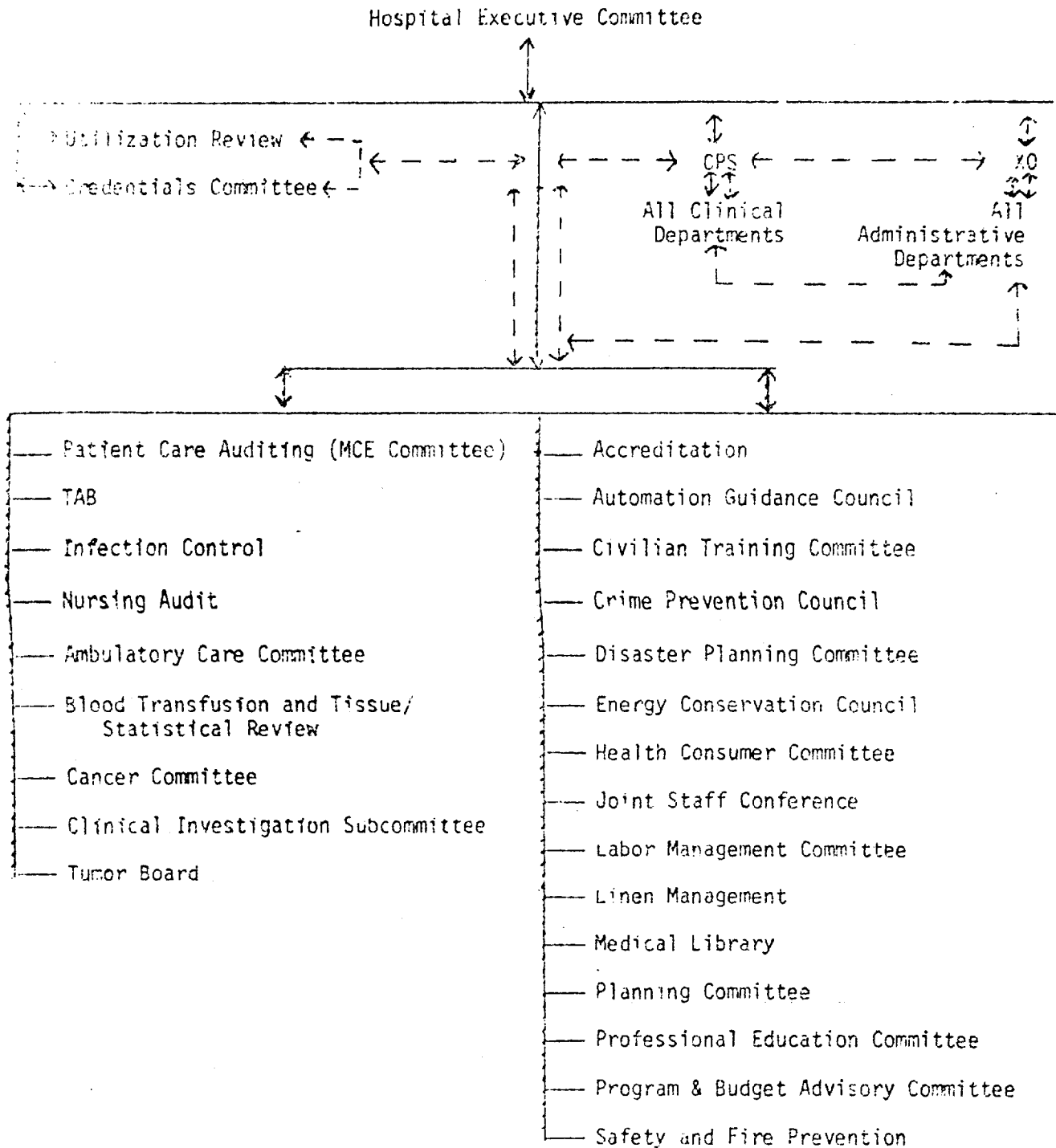
have not been considered in performing what little quality assurance work is being accomplished. There is an exception to the generally bleak outpatient quality assurance picture at DeWitt; that exception is the Department of Family Practice and the efforts in that department are a recent innovation. A more complete discussion of the family practice department's program will follow.

The management of the hospital recognized the need to strengthen the quality assurance program in the fall of 1980. The impetus for this concern was an upcoming accreditation visit by the Joint Commission of Accreditation of Hospitals scheduled for April of 1982. The administrative resident at that time was directed to formulate a new QA plan which would fulfill the new standards on quality assurance instituted by the Joint Commission on Accreditation of Hospitals in January, 1981. To that end a revised plan was developed (Appendix A). The plan encompassed all the facets of a model plan which the JCAH outlined in the Manual for Accreditation of Hospitals, dated 1981. A review of the plan reveals that an organization for the quality assurance activity was developed. The organizational structure was activated prior to the accreditation and quality assurance projects began to flow.

Subsequent to the accreditation visit the flow of problems slowed to a trickle. The reason for the diminution of the process can be linked to several key factors. First the plan, although technically correct, was not a tool which the practitioners could use as a ready reference. The format for submitting problems (DA Form 2496, Appendix B) required a great deal of information, and it was cluttered. The chart which described the flow of information (Figure 2) did not present a clear picture of the quality assurance process.

Another reason for the failure of the plan can be traced to the management of the program, the Hospital Executive Committee. This committee is composed of the Hospital Commander, the Executive Officer, the Chief of Professional Services, and the Chief, Department of Nursing. The committee was also to serve as the Quality Assurance Committee for the institution. It became obvious quickly

FLOW OF INFORMATION OF COMMITTEES  
(Effective 1 January 1981)



←——→ Formal Flow  
 ← - - - - -> Informal Flow

APPENDIX D

FIGURE 2

that the time required to monitor the QA activities of the hospital was too much for the committee to handle properly. The jolt which led to that realization of the Executive Committee was the reoccurring comment on all the committee minutes reviewed of, "No quality assurance problems noted." This resulted in a decision that another structure had to be developed to oversee the QA program.

In order to reevaluate the process to establish a more viable structure, meetings with the hospital hierarchy were conducted. The results of those meetings were:

1. The medical and administrative staff did not want to participate in another committee.
2. The focus of the QA program should be at the departmental level, with the department chief having the decentralized responsibility to conduct the QA program at his/her level.

In order to include the recommendations of the majority the plan was rewritten (Appendix C). The revision included the formation of a Quality Assurance Coordinating Committee to oversee the QA activities of the hospital. In order to not require the staff of the hospital to attend another committee meeting the membership was limited to:

1. Chief, Professional Services (Chairman),
2. Department of Nursing QA Coordinator,
3. Chief, Inpatient Branch, Clinical Support Division,
4. Risk Manager, and
5. Administrative Resident.

The issue of departmental centered QA activities was included in the plan by specifically challenging them to develop a QA plan for their organization and requiring reports on their activities.

The revised plan did simplify the reporting procedures and attempted to place the monitoring responsibility on a committee (the QA Coordinating Committee) which is better suited to perform the detailed supervision needed.

The quality assurance activities currently being performed in the hospital's outpatient activities are minimal. The Department of Family Practice is the current pacesetter in performing outpatient quality assurance studies. This department has not only the family practice clinic under its control, but also is responsible for the troop health clinics, health clinics at Fort A.P. Hill and Vint Hill Farms Station, the emergency treatment room, the acute minor illness clinic, and the flight surgeons clinic. The department conducted a study in the emergency room on abrasions. The results of this study (Appendix D) show a basic understanding of audit procedures but the format for the studies does not allow for identification of individual providers whose practice is unacceptable. Although the study was not as complete as it could have been, it did point out shortcomings and resulted in protocols and training sessions to correct shortcomings. A follow-up study (Appendix E) did reveal some improvement in the quality of care provided for that specific diagnosis.

The reason for the family practice department's QA program is not entirely self-motivated by the department's personnel. The department is responsible for an accredited residency program and in order to fulfill the accreditation standards the department must have a viable QA program. The program does

demonstrate that a QA process is ongoing but could be improved. The family practice QA plan does not directly address the monitoring of individual physician practice. The identification of deficiencies on a departmental level may be inappropriate if one or two practitioners are responsible for the majority of the deficiencies. The monitoring of the quality of care provided should extend to the individual physician. This is particularly true in a teaching program if a resident's ability is to be objectively accessed.

Beyond the family practice department's efforts, the efforts of the hospital are not very effective. The quality of care rendered in the Acute Minor Illness Clinic (AMIC) is required by the program document which prescribes its organization to conduct daily audits of the enlisted personnel who are physician extenders.<sup>2</sup> This audit is to insure that the extenders are complying with the algorithms which prescribe diagnostic and treatment regimens for an array of common diagnoses and patient physical complaints. This mandatory review of 10% of the cases seen daily is excellent for insuring program maintenance but it does not evaluate the efficacy of care other than what is prescribed in the extenders manual.

The Ambulatory Care Committee is comprised of providers of ambulatory care and this committee conducts semi-annual audits of outpatient care. The semi-annual audits are mandated by Standard VI of the JCAH and those audits are conducted to fulfill that requirement. The results of those audits have not been widely disseminated and integrated into other quality assurance activities in the institution.

The Chief of Emergency Services in conjunction with the Chief of Pediatric Service has instituted a daily review of all pediatric patients seen in the emergency room during the previous evening and night. The thrust of this review is to survey the appropriateness of care provided to the pediatric patients by the emergency room staff. This review is a result of having a large number of providers (mainly family practice and civilian contract residents) caring for pediatric patients in that setting. This daily audit allows the pediatric staff to contact the patients if they feel that additional care needs to be rendered. The shortcoming with the system is that a methodology for trending problems which are either generally applicable to all providers or are attributable to an individual provider is needed. This lack of feedback invites a constant repetition of the problems.

The Medical Care Evaluation Committee of the hospital is responsible for a number of monitoring activities associated with quality assurance and utilization review. Specific to outpatient care is a chart review process whereby a random sample of approximately thirty (30) records are provided to each of the major departments (surgery, medicine and family) as well as pediatrics, obstetrics and gynecology service. The chief of each of these departments/services conducts a review of the last visit annotated in the patient's record. There is no criteria for commonality of the record except that the last visit was in the service within the preceeding ninety days. The chief then reviews the chart based upon his knowledge and reports findings to the committee in a round table fashion. The findings are typically negative. A review of the committee minutes revealed a complete lack of action resulting from this type of audit.

### Summary of Current Quality Assurance Activities

The current outpatient quality assurance process at DeWitt Army Community Hospital is not coordinated. There are clusters of outpatient QA being performed, but their results are not intergrated into a hospital wide program. The information gained by one study is not shared with other providers in the institution. The institution lacks a sense of direction in the assurance of outpatient care.

The lack of direction is due in part to the inexperience of the professional staff in performing QA studies. The retrospection audits performed during the 1970's were conducted primarily by medical records technicians and were basically ineffective. This frame of reference is held by most physicians to be what quality assurance was and is, and they do not want to get involved. The idea of starting an audit process for outpatient care is unwelcomed and this feeling, coupled with a general lack of knowledge of quality assurance techniques, i.e., concurrent audits, trending, generic audit, and process versus outcome audits, presents a significant challenge to the hospital leadership.

The solution to the problem is not ordering the outpatient services to conduct audits since this does not solve the basic problem, a lack of knowledge of how to conduct a QA program. If the knowledge of how a QA program is to function was understood by the medical staff they probably would have changed the format of the medical care evaluation committee's monthly random audit procedure. Instead, they continued to perform the same nonproductive chart reviews.

This study will concentrate on developing an information network whereby the individuals who are required to conduct quality assurance studies will know where

to find the data necessary to do the studies. Additionally, a format for displaying the data and using appropriate statistical tests to validate the results of the studies is to be developed.

### Footnotes

<sup>1</sup>Joint Commission on Accreditation of Hospitals, Manual for Accreditation of Hospitals, (Chicago, 1982).

<sup>2</sup>US Army Health Services Command, Ambulatory Patient Care Model #13, dated August, 1977, Fort Sam Houston, Texas.

## CHAPTER IV

### IDENTIFICATION OF NEEDED INFORMATION

#### Introduction

Using the Joint Commission on Accreditation of Hospitals' standard on quality assurance as the basis for determining baseline requirements of a QA program, the one element which poses a significant challenge in fulfilling was "cost effectiveness".<sup>1</sup> In order to show cost effectiveness a standard cost-benefit analysis can be utilized to determine if the outcome of a study has resulted in a decrease in expenses necessary to treat a particular medical complaint or diagnosis. In order to determine the cost involved in conducting the study a price tag has to be placed on all individual efforts involved in the study. Although the formulation of costs is not impossible it is annoying. Recently, Army hospitals have for the first time attempted to identify personnel cost in order to comply with the Uniform Chart of Accounts Program.<sup>2</sup> The effort necessary to assign personnel cost to work centers based on a percentage of time spent by the work force of the institution in a particular area, i.e., Ophthalmology Clinic, versus inpatient care for the Ophthalmologist. This system has provided no benefits to the hospital.

The InterQual Corporation which has consulted with many hospitals on establishment of quality assurance programs speaks repeatedly of the QA department in conducting many of the data collection tasks and cost identification responsibilities inherent in quality assurance.<sup>3</sup> The current policy of the Army is

that no personnel positions will be recognized exclusively for quality assurance. Without an administrative element to perform the tedious work of identifying the costs and benefits of a quality assurance study that responsibility would fall on the professional service conducting the study. The result is that concurrent with determining what medical implications are to be rectified by the study is the responsibility to show a positive monetary outcome. At this juncture the professional aspects of quality assurance are difficult to communicate to the professional staff and to compound the problem by adding a financial aspect might be overwhelming to the staff.

An alternative to cost-benefit analysis is a systematic approach to reviewing the effectiveness of care provided to the most common diagnosis/patient medical complaints. The hospital cared for 437,826 patients in the ambulatory care setting during the last year.<sup>4</sup> In order to determine the most prevalent diagnosis/chief complaint a survey was conducted for a one week period in four large outpatient activities. The activities were: (1) Obstetrics and Gynecology Clinic, (2) Acute Minor Illness Clinic, (3) South Post Health Clinic, and (4) Family Practice Clinic. These clinics were selected because they are active and together represent a cross section of the patient population treated.

The survey document (Appendix F) required the clinic personnel to categorize the chief complaint the patient expressed to the individual who initially interviewed the patient and log the diagnosis after the visit. The tabulation of the data provides the clinic chief an assessment of the variety of ailments and diagnoses treated in that particular setting. The results of the survey are depicted in Figures 3.1, 3.2, 3.3, 3.4.

## RESULTS OF CHIEF MEDICAL COMPLAINT/DIAGNOSIS SURVEY

- FIGURE 3.1                      South Post Health Clinic
- FIGURE 3.2                      Acute Minor Illness Clinic
- FIGURE 3.3                      Family Practice Clinic
- FIGURE 3.4                      OB/GYN Clinic

FIGURE 3

SOUTH POST HEALTH CLINIC

10 Most Frequent Medical Complaints and Diagnoses

CHIEF COMPLAINT (Reason for Patient Presenting)

<u>RANK</u>	<u>DESCRIPTION</u>	<u>ACTUAL #</u>	<u>%</u>
1	Muscular Skeletal Pain	63	19.8
2	Rash	33	10.4
3	Follow-Up	24	7.5
4	Sore Feet	21	6.6
5	Back Pain	18	5.7
6	Physical Exam	14	4.4
7	Blood Pressure Check	13	4.1
7	Sore Throat	13	4.1
9	Stomach Pain	10	3.1
10	Conjestion	9	2.8
	<u>Total for the top 10</u>	<u>218</u>	<u>68.8</u>

\*Total Useable Observations

318

Diagnoses (Dispositions)

1	Referrals	25	8.7
2	Physical Exam	15	5.2
3	Bronchitis	13	4.5
4	Muscle Strain	11	3.8
4	Blood Pressure Check	11	3.8
4	Muscle Spasm	11	3.8
7	Sinusitis	9	3.1
7	Tendonitis	9	3.1
7	Upper Respiratory Infection	9	3.1
7	Rash	9	3.1
	<u>Total for the top 10</u>	<u>122</u>	<u>42.7</u>
**	Poison Ivy	8	2.8
**	Prescription Refill	8	2.8
**	Shin Splints	8	2.8
**	Sprained Ankle	8	2.8
**	Gastritis	8	2.8
**	Common Cold	8	2.8
	<u>Total for the top 16</u>	<u>170</u>	<u>59.4</u>

\*Total Useable Observations

286

\*The clinic surveyed a total of 454 patients, the total number of observations listed under complaints and diagnoses refers to the number of useable/identifiable entries for those categories.

\*\*These diagnoses were added in order to portray a more complete picture of the range of diagnoses treated in the clinic.

FIGURE 3.1

AMIC  
10 Most Frequent Medical Complaints and Diagnoses  
CHIEF COMPLAINT (Reason for Patient Presenting)

<u>RANK</u>	<u>DESCRIPTION</u>	<u>ACTUAL #</u>	<u>%</u>
1	Muscle Skeletal Pain	46	14.7
2	Sore Throat	31	9.9
2	Cough	31	9.9
4	Follow-Up	22	7.0
5	Rash	19	6.0
6	Flu Symptoms	18	5.8
7	Congestion	15	4.8
7	LBD	15	4.8
9	Earache	13	4.2
10	Eye Pain	10	3.2
	<u>Total for the top 10</u>	<u>220</u>	<u>70.3</u>

\*Total Useable Observations 313

Diagnoses (Dispositions)

1	Referred	28	9.8
2	Allergy Rhinitis	20	7.0
3	Sininitis	19	6.6
4	Bronchitis	16	5.6
5	Flu Syndrome	15	5.3
6	LBD	10	3.5
7	Tendenitis	9	3.2
8	URI	8	2.8
8	Pharengitis	8	2.8
8	Viral Syndrome	8	2.8
	<u>Total for the top 10</u>	<u>141</u>	<u>49.3</u>

\*Total Useable Observations 286

\*The clinic surveyed a total of 343 patients, the total number of observations listed under complaints and diagnoses refers to the number of useable/identifiable entries for those categories.

FIGURE 3.2

# FAMILY PRACTICE CLINIC

## 10 Most Frequent Medical Complaints and Diagnoses

### CHIEF COMPLAINT (Reason for Patient Presenting)

<u>RANK</u>	<u>DESCRIPTION</u>	<u>ACTUAL #</u>	<u>%</u>
1	Follow-up Appointment	24	15.6
2	Physical Exam	12	7.8
3	Pap Smears	11	7.1
3	Flu-Symptoms	11	7.1
5	Ear Ache	10	6.5
6	Back Pain	8	5.2
7	High Blood Pressure	7	4.5
8	Routine OB Visit	6	3.9
9	Ear Infection Follow-Up	5	3.3
10	Well Baby Check-Up	5	3.3
	<u>Total for the top 10</u>	<u>101</u>	<u>66.0</u>

\*Total Useable Observations 153

### Diagnoses (Dispositions)

1	Pregnancy	12	7.7
1	Physical Exam	12	7.7
3	Hypertension	10	6.5
4	LBD	7	4.5
4	Serous Otitis	7	4.5
4	Otitis Media	7	4.5
7	Sinus Infection	5	3.2
8	Diabetic	4	2.6
8	Well Baby Check	4	2.6
8	Vaginitis	4	2.6
8	Anemia	4	2.6
8	Routine OB Visit	4	2.6
	<u>Total for the top 12</u>	<u>80</u>	<u>51.6</u>

\*Total Useable Observations 155

\*The clinic surveyed a total of 183 patients, the total number of observations listed under complaints and diagnoses refers to the number of useable/identifiable entries for those categories.

FIGURE 3.3

## OBSTETRICS AND GYNECOLOGY

### 10 Most Frequent Medical Complaints and Diagnoses

In this particular clinic the complaints and diagnoses are listed together due to the limited categories of complaints and diagnoses unidentifiable by the clinic staff.

<u>RANK</u>	<u>DESCRIPTION</u>	<u>ACTUAL #</u>	<u>%</u>
1	OB Routine	155	33.6
2	Follow-Up Appt	61	13.2
3	Pap Smear	39	8.5
4	Vag Infection	32	6.9
5	Problem GYN -?	27	5.9
6	Preg Test	22	4.8
7	Lower Abdominal Pain	20	4.3
8	BCP Refill	18	3.9
8	Vaginal Bleeding	18	3.9
10	IUD	8	1.7
10	Colpo	8	1.7
	Total for the top 11	<u>408</u>	<u>88.5</u>

\*Total Useable Observations

461

\*The clinic surveyed a total of 504 patients, the total number of observations listed under complaints and diagnoses refers to the number of useable/identifiable entries for those categories.

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FIGURE 3.4

From this information a plan can be developed for performing studies to insure the quality of care provided in the clinic setting based on the prevalence of the diagnosis/chief complaint. The cost effective issue is addressed not from a cost-benefit approach but from the common sense approach that if studies are to be conducted they should be aimed at those issues which effect the greatest number of patients. The prevalence of a diagnosis or complaint is not the only criteria which can be used in determining what should be investigated. Findings by other services may highlight a gross need for action. An investigation of inappropriately requested radiographic studies by the radiology department may be a priority matter from the headquarters point of view and therefore that study may be mandated. Or if an influx of return patients are seen for a particular diagnosis which should not result in return visits, the clinic chief may want to direct efforts to identify the problem and take corrective action. The rank-order assessment of diagnosis/chief complaint provides the clinicians with a logical basis to formulate a QA plan in the absence of other stimulus.

To carry the survey of the clinics to all thirty-seven clinics in the hospital would provide the institution a snapshot of what types of complaints and diagnoses are seen by the hospital on the aggregate. Again referring to the JCAH standard on quality assurance a requirement for hospital-wide priorities is required.<sup>5</sup> A compilation of total number of patients seen for a specific diagnosis in all clinics would provide a basis for decision making on assignment of priorities for the hospital leadership.

The literature constantly refers to an elaborate listing of sources for identification of quality assurance problems.<sup>6, 7</sup> The list encompasses:

1. Utilization Review Data,
2. Morbidity Review,
3. Mortality Review,
4. Tissue Review,
5. Antibiotic Committee Results,
6. Therapeutics Agents Board Results,
7. Blood Utilization Committee,
8. Infectious Disease Committee,
9. Unusual Occurance Report,
10. Safety Committee,
11. Outside Audit Agencies, i.e., JCAH, Army Audit Agency, General Accounting Office,
12. Credentials Committee, and
13. Etc.

Interviews conducted with the professional staff of the hospital revealed that many of the above listed sources of information are not being used to formulate quality assurance studies.<sup>8, 9</sup> The reason for this lack of action is in part due to a lack of demand to conduct quality assurance studies. As mentioned earlier, only in anticipation of the accreditation visit by the Joint Commission on Accreditation of Hospitals did the flow of quality assurance studies begin. Since the time of the survey (June, 1981) to the present only five quality assurance studies have been instituted.<sup>10</sup> Of the five studies instituted three are applicable to the outpatient setting.

A review of committee minutes of the tissue, infectious disease control, blood utilization, and morality and morbidity committees showed that a standard agenda is followed and the results are predictable. Variations noted in the discussion are explained and typically no recommendations are made concerning problems noted. In order to correct this situation guidance to the committee chairmen mandating problem identification is needed. The chief of emergency medical services stated that it would be helpful in formulating studies to have more information from the laboratory on problems which the laboratory has from his department.<sup>11</sup> During a follow-up interview with Major Ridenour, Assistant Chief, Department of Pathology, Dr. Ridenour stated that it is possible for his department to identify trends in apparent inappropriate use of laboratory tests.<sup>12</sup> This failure in communication is due to a lack of a concentrated effort on the part of various departments and services to surface problems.

The professional staff of the outpatient clinics requires information not only on what types of patients they treat but also needs to know how the treatment of patients affects other activities within the hospital. In an effort to correct this situation the revised hospital quality assurance (Appendix C) has placed an emphasis on departmental/separate service quality assurance activities. By requiring separate services and departments to report their quality assurance efforts monthly to the Quality Assurance Coordinating Committee a portal for expression of both intra and interdepartmental problems is open. The identification of a problem in other services via the interdepartment problem identification format will lead to increased interaction between departments. A

collegiality must exist among staff members to effectively deal with these types of problems. Heretofore waiting for staff members to voluntarily identify problems has not resulted in any action. In observing, the author has noted that the majority of interdepartmental action has arisen from incidents which were possibly disastrous. The responses are normally hasty and although the results may be a perfect solution, having to await a crisis to correct a problem is not the ideal situation.

The mandate of the revised hospital quality assurance program to identify problems on a regular basis will provide the information needed for clinic chiefs to more effectively deal with the intent of quality assurance.

In addition to the internal patient profile and problems identified by other services/departments there are other types of information required for the clinic to formulate a quality assurance plan of action. Although the interviews with clinic chiefs did not reveal a desire for this information, the need for it is documented in the literature. Dr. Stanley Skillicorn in his book, Quality and Accountability, elaborates on the need to identify problems from both official and unofficial sources. The official sources are comprised of all those pieces of paper which make their way through the hospital such as necessary reports, statistical summaries, and minutes of meetings. Those documents include many important facts which can pinpoint quality assurance problems. In addition to all those official sources are the complaints/comments of staff members, patients and visitors to the institution.

The problem with unofficial information is capturing it. At some point an individual has to pinpoint the problem and communicate the concern to an

individual who will act on it. Verbalizing the problem is not adequate. At some junction the unofficial information has to be transformed into writing whereby it becomes official. At the present time patient complaints are transmitted to the patient representative via spoken work or in writing. In either case the complaint is eventually recorded on a "Concerned Care Comment " (Appendix G).

The complaints are handled on an individual basis with a written reply ultimately being sent to the patient. The total number of complaints are catagorized monthly and are used as the basis for a monthly report (Appendix H). The reports are reviewed by the hospital staff and the resultant action has been sporadic. Changes resulting from the report have been made in the areas of patient waiting times in the emergency treatment room and pharmacy. Also several indepth studies of the central appointment system have been conducted. The concerns patients have conveyed are acted upon at least individually and in a number of areas changes have been enacted. Even though Improvement has occurred additional emphasis on the system could be even more productive.

The patient advocate has given the patient a voice in formulating policy change but the staff lacks a similar conduit to express concerns. In order to rectify this situation a system for individual expression of possible quality assurance problems needs to be defined. The form included in the revised hospital quality assurance plan (Appendix I), MEDDAC Form 522, Quality Assurance Program Problem Assessment Worksheet has the potential to allow individual initiation of problem identification. The solicitation of individual initiatives needs the support of the hospital leadership. A nonretrobution policy needs to be extended to those who step forward to reveal a problem. An open invitation to all

staff members to provide input to the program will bring forth both sound and not-so-sound problems. The handling of the not-so-sound problems requires tact on the part of the quality assurance chairman. Positive reinforcement of those who contribute, no matter how mundane the subject, should be the tenor of the hierarchy.

#### Identification of Data Sources

The discussion with the clinicians in the outpatient setting revealed a need for more complete information in order for them to assess the quality of care provided. Determining where the needed information can be derived is the next order of business. The initial source of possible information was the Patient Administration system and Biostatistical Agency, (BIOSTAT Agency) US Army Health Services Command, Fort Sam Houston, Texas. The BISTAT Agency is the single manager for all automated biostatistical information for the US Army.<sup>13</sup> This organization compiles a tremendous volume of information on patients treated by any Army hospital. But a discussion with Lieutenant Colonel Author Badgett, Chief, Biostatistics Division of the agency revealed that the vast majority of the information captured is on patients admitted to the hospital. The only data available on outpatients is the number of clinic visits and the category of beneficiary, i.e., active duty, dependent of active duty, retiree, etc. The data available at the BISTAT Agency was also locally available and did not appear to be helpful.

LTC Badgett recognized the lack of automated information as a problem in monitoring quality assurance. At the current time experiments are being conducted at various Army hospitals to determine if it will be feasible in the future

to capture outpatient treatment data. The high volume of outpatient visits which take place daily within the Army is making this task extremely difficult. LTC Badgett's prognosis for automatic support in outpatient services is not optimistic. The time required to bring the experimental models into actuality is an excess of five years. Obviously the quality assurance program cannot wait for automated data collection.

Without support from the BIOSTAT Agency the hospital will have to rely on data which is locally available. The heart of the hospital data collection is the Patient Administration Division. The Patient Administration Division has the responsibility for maintenance of all health records of patients treated at the hospital. Currently the division is maintaining in excess of 75,000 outpatient records.<sup>14</sup> Army outpatient health records are maintained in a chronological sequence, the most recent encounter is the last entry in the record and is the top document in the file. The size of the health record depends on the number of times the patient has been treated. The record is perpetual, the same records can contain forty years worth of data. The only time an outpatient health record is retired is when the patient has not been seen within the last three years. Even if the record is retired it is forwarded to the records storage area in St. Louis, Ill and held for fifty years.<sup>15</sup> The outpatient medical record is the single most valuable source of information in the institution. The evaluation of the quality of care is determined from the notes made by the provider in conjunction with the results of tests performed. Since the completeness of the record is the key factor considered

in evaluating the quality of care by the Joint Commission the record should also be the primary focus of local quality assurance activities.

The outpatient health record contains many different types of data. The most common elements of the outpatient record include: laboratory results, x-ray results, copies of physical examinations, summaries of inpatient episodes, and narrative descriptions of outpatient visits. The quality of the content of the record is dependent on all the individuals who contribute to the many inputs which constitute the body of the record. The laboratory and other departments are responsible for insuring that copies of all tests are forwarded to the outpatient records for posting to the record. After receiving the test results, the records technicians post the results to the record. Herein lies a tremendous problem. In order to post results the record has to be in the records room. The completeness of the record is dependent upon all the facts of the process being in coordination; if any one of the components of the system fails, the result is an incomplete record.

The laboratory, pharmacy and radiology departments each maintain individual records of their portion of a patient encounter. Individual copies of each laboratory test are maintained by the Department of Pathology and the Department of Radiology. The pharmacy maintains copies of all prescriptions filled in that service. These copies provide the chief of each of those services a key to assessing the quality of services provided and the appropriateness of requested tests or prescriptions.

The Patient Administration Division, as mentioned earlier, maintains the medical records for patients treated at the hospital. Aside from the valuable information contained in those records, the most important information which the division can provide is the completeness of the record. Because of its responsibility to pass all information to the record the Patient Administration Division is most capable of assessing the status of the composition of the record. The biggest issue in assessing outpatient care is the availability of the record. The availability of a record can be attributed to a variety of problems. There are problems with individual patients maintaining their own record, clinics may not promptly return records, and the record can be misplaced. Any one of these situations can seriously affect the ability to conduct audits and/or studies. In order to have a viable program the Patient Administration Division will have to be able to support the audit procedures and to that end the most important data the division can provide is on the administrative actions required to maintain the complete outpatient health record. Specific data should include time required for clinics to return records after a patient appointment, percent of records not maintained in the outpatient records, total number of test results for which a medical record has to be constructed, and other measurements of completeness of the outpatient medical record.

The Uniform Chart of Accounts Branch of the Comptroller Division amasses a tremendous amount of data regarding the operation of the hospital. The problem with the data they compile is that it is not useful to the management of the hospital in decision making.<sup>16</sup> Although the results of the sophisticated step down cost apportionment method does not provide a usable end product, the data base

upon which the system is based is a handy resource to the organization. With very little effort the Uniform Chart of Accounts Branch can provide an extract of almost any type of data a manager would need to evaluate the cost of operating a service and also the amount of workload generated by that service.

The nature of the Uniform Chart of Accounts Office is such that it would be inappropriate to expect problems to be identified by it. The data bank should be used as a resource in confirming, analyzing and evaluating problems which involve resources. By soliciting historical data from the Uniform Chart of Accounts Office the person conducting the study may be able to gather more complete information upon which to judge his/her decision.

#### Methods of Extracting Data

##### **Defining Data to be Extracted**

The extraction of data which will be used in the outpatient quality assurance program will have to be primarily done manually. The hospital is totally lacking in automation in the primary care setting. As discussed earlier the Patient Administration and Biostatistical Agencies do not capture any data in the outpatient setting except for workload and a very limited number of diseases which are reported for public health reasons. The lack of automated data banks does not mean that data is unobtainable. The key to data collection is to determine at what point in the patient encounter or after the encounter the data collection should take place. In order to determine the optimal point to collect the data some preliminary decisions have to be made. The subject or focus of the study needs to be determined; the focus may be on a diagnosis, a chief medical complaint, a category of patient (age, sex, race, etc.), a particular laboratory test, an

administrative procedure, or the patient's food. After the subject is selected the next decision is what is to be measured, counted, examined, or compared by the data collector. This needs to be clearly defined to insure consistent results. The data to be collected may be as simple as the weight of male patients over 40. But any data element which requires interpretation may not be valid; a request that the data collector "determine whether a lab test was appropriate based on the patient history", requires more definite guidance. The data collector must have very clear guidance in order to effectively perform his/her task.

### **Sampling Considerations**

Assuming that the subject is well defined and the data to be collected is clearly delineated, the next question is how much. How much data needs to be collected is a very difficult problem to address. There are several principles of which the individual conducting a study should be aware. The first matter to be addressed is population size.

The population size is the number of items which are the subject of the study. If the population to be studied is those patients who are treated in the emergency treatment room in 1981, that number may well be 50,000. Conversely, an audit of gunshot patients seen in the same clinic may represent only twenty incidents. If the population is small a complete audit of all encounters may be possible and that audit will be very accurate. It is more likely that the audit will be on a large population, and therefore sampling techniques are necessary.

If a sample needs to be taken of the population there are certain principles that must be observed. Randomness of the sample is the key to arriving at a true picture of the population. Two conditions must be met to achieve randomness: (1)

all observations must come from the same population, and (2) the sample observations must be statistically independent.<sup>17</sup>

The first condition is met by adhering to the criteria discussed earlier regarding clear identification of the subject of study. The independence of the observation is based upon the point that the observations should stand alone and their selections should not change the value of other possible observations.

The problem of randomness needs to be discussed further. If the sample is to be a valid reflection of the population an idea of what the population looks like is necessary. The sample should be comprised of all elements of the population or at least all elements of the population must have an equally likely possibility of being selected. Elements of the population may be excluded from the sample for seemingly obvious reasons in retrospect. If "stat lab test" is to be sampled, the sample should provide all requestors of "stat lab test" to be included. Limiting the time frame for data collection so that certain activities will be excluded will taint the results. If the data collection is conducted on Tuesday and several clinics do not operate on Tuesdays, then those clinics will not have the opportunity to be represented. In determining the data collection scheme the individual conducting the study should be cognizant of the potential of excluding population data.

Following the evaluation of how the sample is to be done to insure randomness and independence, the size of the sample needs to be determined. Sample size is dependent upon the cost of the sampling, the timeliness of the sample, and the accuracy desired. Cost is significant in any sample; the time and effort required to collect the sample information should be reviewed before undertaking a quality

assurance study. A very short sample collection period will reduce the size of the sample. The desired accuracy of the final result must be taken into consideration.

The results of sample generally becomes more accurate as the size of the sample increases. Of course, as the size of the sample increases the cost of the study increases and the timeliness of the study decreases. The decision on which of these three factors is the most important is solely that of the individual who will have to make decisions based on the results. There is no magic number which an individual can point to and say that is the minimum acceptable sample size. The central limit theorem stipulates that with a large  $n$  (sample size of 30) the theoretical sampling distribution of  $\bar{X}$  (mean or average) can be approximated by the normal curve.<sup>18</sup> This theorem is the basis for many statistical tests and therefore the number 30 is a valid milestone if the individual conducting the study plans to use statistical tests based on the central limit theorem.

The vast array of other statistical tests which can be used in evaluating study results are not based on the "large  $n$ " of the central limit theorem. To use 30 as a guide may result in incomplete data for other tests of significance. To circumvent the possibility of either having too much or too little data the literature should be consulted prior to data collection to ascertain what sample size would provide adequate information for the statistical test to be used.

#### Developing a Quality Assurance Study

The practical application of sampling techniques and statistical tests is the next step in conducting a quality assurance study. The types of data maintained by the pharmacy, laboratory, and radiology departments can provide the users of their services valuable feedback on the appropriateness of care received for these

services. Each of these services maintains copies of the tests performed on the patient or in the case of the pharmacy the prescription is filed in the pharmacy. These services also have a unique problem in evaluating the appropriateness of the service provided because they normally do not have the opportunity to see the patient's medical record. The patient normally arrives at one of these services with only a copy of the request for a procedure or prescription. The procedure request/prescription has very limited patient information beyond basic identification data. This lack of information necessitates that these services rely on the outpatient record department to collect the records of patients involved in an audit. The retrieval rate on requested patients records by the outpatient records department is approximately 50% based on monthly audits of narcotic documentation audits conducted in the past year.<sup>19</sup> This low retrieval rate has to be anticipated by the service conducting the audit. If a sample of 50 records is needed the service should identify 100 records for retrieval.

The steps involved in conducting an audit by one of the services which is designated to assess the appropriateness of a procedure is as follows:

1. Determine the procedure to be audited. This selection process can be based on cost, sudden increase in number of tests performed, possible delirious patient effects, identification of problems involved with the procedure by hospital staff or patients, or any other problem identification process.
2. Establishment of audit criteria. The criteria should be explicit and thoroughly understood by those who will conduct the audit. The criteria should be acceptable to the staff who order the procedure.

3. Determine the compliance level which will be standard for evaluating the audit results. The establishment of a compliance of 100% will almost assure an unfavorable outcome, if a compliance rate of 90% or 85% is acceptable, consideration should be given to setting a standard less than 100%.

4. Select the statistical test which will allow a valid conclusion to be drawn on whether the audit results meet the compliance goal. A more complete discussion on selection of a statistical test is in the next chapter.

5. Determine the sample size which is necessary to gather sufficient data to conduct the statistical test. A reminder that if records must be retrieved from the outpatient records area the retrieval rate is approximately 50% and therefore the number of records requested should be proportionally increased.

6. Identify the records to be audited. The laboratory and radiology copies of test results provide the key to identification of the patients to be audited. For pharmacy the prescription form also provides the same information. In selecting the records to be audited, the randomness of the selection process must be insured. The outpatient record branch must have both the patient's name and social security number to be able to locate the record.

7. Conduct the audit. The actual performance must be measured against the criteria and recorded on a worksheet. Confidentiality of the patient and the provider must be insured. This can be accomplished by using a code to identify the provider, assigning numbers is acceptable. The last four numbers of the patient's social security number is adequate identification of the patient. A key which lists the patients' names and social security numbers, as well as the provider and his code number should be safeguarded by the official conducting the audit. An

example of a worksheet is in the following chapter.

8. Perform the statistical test. The statistical test will provide a statistical basis for evaluating the actual clinical practice of the population of interest as measured against the criteria.

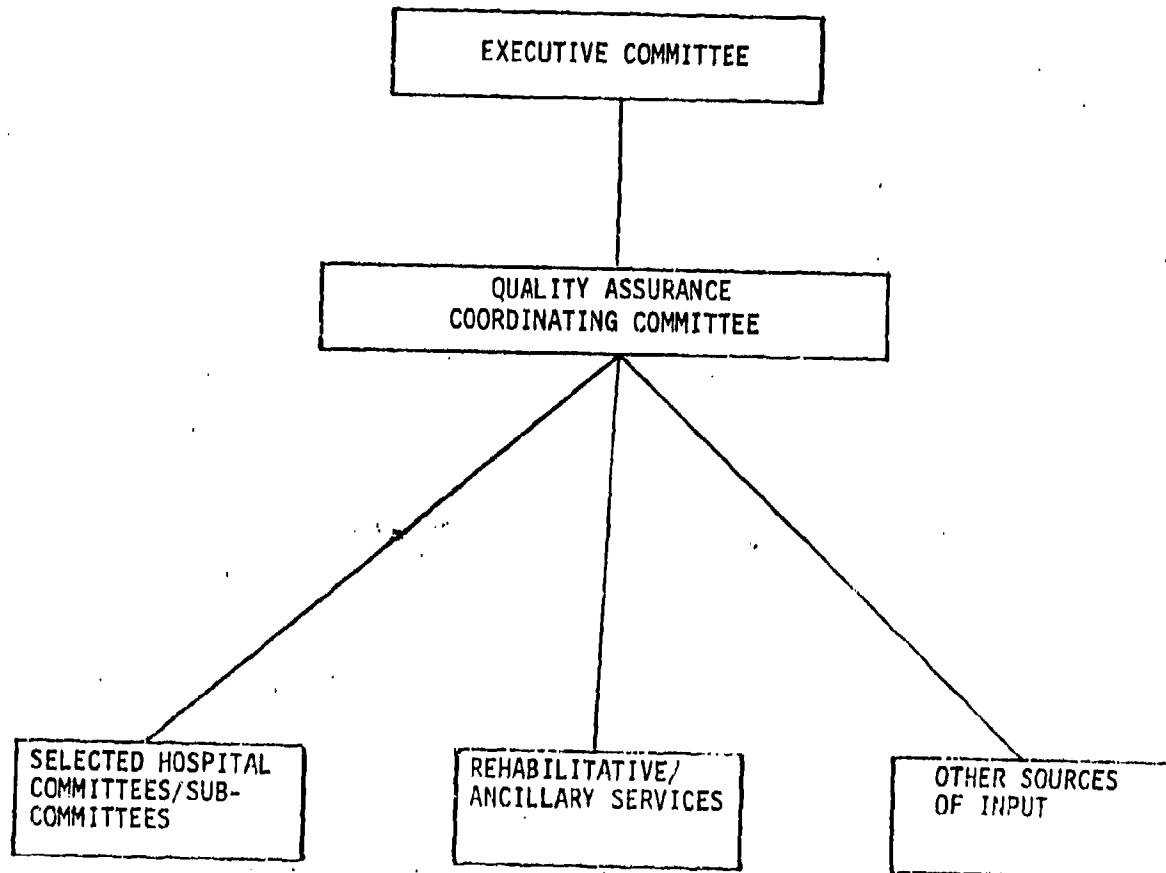
9. Draw conclusions based on the statistical results. If the results are obvious, either good or bad, the conclusions can be drawn quickly. The results may not be clear. A judgement of whether the statistical significance/insignificance also represents practical significance/insignificance will have to be made by the individual reviewing the results. A statistical significant result may not present a problem in the practical sense. The conclusion should address both the statistical and practical significance of the findings.

10. Develop recommendations. If the findings indicate problems, recommendations for resolution of those problems need to be developed. If the actions to correct the problems are outside the department then the individuals who do have the authority to enact the action must do so. The information flow outlined in the hospital quality assurance plan (Figure 4) would have the recommendations going to the quality assurance coordinating committee who would in turn direct actions by the departments that need to institute the actions necessary to affect change.

11. Establish follow-up studies. The process of quality assurance is not complete until the problem is corrected. To insure compliance, follow-up studies are required. The frequency of the follow-ups is dependent on the nature of the problem. If actions to correct the problem can be taken quickly then the follow-up study may be scheduled shortly after the initial study. Whatever the situation, the follow-up study has to be done to validate the efficiency of the remedial actions.

## ANNEX A

### I. Organization



### II. COMPOSITION OF QA COORDINATING COMMITTEE

Chief, Professional Service (CPS)  
Risk Manager  
Nursing QA Coordinator  
Chief, Inpatient Care Branch  
Administrative Resident  
Secretary to the CPS

Chairman  
Member  
Member  
Member  
Member  
Recorder

A-1

FIGURE 4

Some problems may require constant monitoring; the emergency room has a constant flow of providers and therefore to assume that a problem is resolved based on one satisfactory follow-up audit may not be valid in the long run.

12. Submit the study to the quality assurance coordinating committee. The complete audit should be forwarded to the hospital quality assurance coordinating committee to insure that the flow of information is maintained. The committee needs to be aware of all studies for a number of reasons; the committee must keep the hospital executive committee informed, it must recommend prioritization of quality assurance problems, it must maintain a central file of quality assurance activities, it must be involved in order to insure that other departments institute changes needed to remedy the problems, and to preclude duplication of effort, the committee must be aware of all studies. The intergrated/coordinated aspects of an institutional plan is dependent upon the input from all the quality assurance activities of the hospital.

The methodology described above is applicable to radiology, pathology and pharmacy in identification of problems to the hospital quality assurance coordinating committee. This methodology is not all encompassing, problems associated with waiting times, internal audits, and other problems may be better dealt with using sources other than the patient chart. By addressing each of the twelve steps the results of any study should fulfill the criteria of the Joint Commission's quality assurance standard.

#### **Concurrent Versus Retrospect Audit Procedures**

As noted previously the pharmacy, radiology, and pathology services must rely on retrospect audits of patient records to assess care. But they have an advantage

over other services; in doing retrospective audits they know which patients they need to audit. Even with a low records retrieval rate the services are able to gather enough records to conduct the audit. The outpatient clinics do not have a way of identifying records for retrieval as records of which patients were treated for a particular disease or presented in a clinic with a particular medical complaint are not maintained. In order to conduct audits for a specific diagnosis, medical complaint, or medical/surgical procedure the record of that patient must be intercepted at the clinic. Since retrieval is impossible, concurrent audit procedures need to be established to capture the data.

Discussion with clinic chiefs confirmed the need for concurrent audit techniques. The most practical method for identifying the chart is for the provider to set aside any record which is to be audited. The charts are then collected and audited at the end of the day. The chart should not be retained in the clinic for an extensive period, 3 days is hospital policy, since this may inconvenience the patient if another appointment is scheduled or if laboratory/x-ray reports need to be filed. The individual(s) who are to conduct the audit must be available at the end of each day to perform the actual auditing of charts. The individual conducting the audit knows exactly how many charts have been reviewed and therefore sample size can be controlled. If the sample is to be 50 charts the audit can be cut off at that point. The concurrent audit technique should work well in the outpatient clinics.

#### Criteria Development

The development of criteria is fundamental to the quality assurance process. An objective of this study is to enable paraprofessional personnel to perform the bulk of the audit process. In order for this goal to be achieved the development of

explicit audit criteria has to be accomplished. Discussions with various clinic chiefs did not produce a consensus of agreement in this area. The clinics located in the hospital who have fulltime hospital staff assigned agreed that paraprofessional personnel could perform the chart audits with certain reasonable limitations. However, a problem does exist in the troop health clinics. LTC Puskas stated that his staff is provided on a rotational basis by the 15th Combat Support Hospital.<sup>20</sup> This constant personnel turnover limits the clinical skills of the personnel staffing the troop health clinics and therefore he felt uncomfortable with their ability to conduct adequate audits. The result is that in the troop clinics the professional staff would have to conduct the chart audit portion of the audit process.

Even in those clinics who have the paraprofessional staff available to conduct chart audits, the professionals directing the study should insure that the paraprofessionals know what they are auditing. The completeness of subjective treatment of patients is difficult to define in a set of explicit criteria. For those situations in which the criteria do not provide definitive guidance the paraprofessional should have a point of contact for resolution of the problem. The physicians who establish the criteria need to recognize the possibility of "exceptions" and have those charts which do not fit the mold referred to a professional for resolution.

### Footnotes

<sup>1</sup>Joint Commission on Accreditation of Hospitals, Manual for Accreditation, (Chicago, January, 1982), p. 152.

<sup>2</sup>The Uniform Chart of Accounts is a step down accounting system whereby all costs of the hospital are apportioned to work centers based on a variety of formulas. In order to maintain the system the fulltime personnel were hired.

<sup>3</sup>InterQual Incorporated, Intergrating Hospital Quality Assurance - Methods for the 80's, (Chicago, IL, 1980).

<sup>4</sup>Outpatient Workload Statistics Maintained by the Uniform Chart of Accounts Branch, Comptroller Division, DeWitt Army Community Hospital, Fort Belvoir, Virginia 22060.

<sup>5</sup>JCAH, p. 152.

<sup>6</sup>US Department of the Army, Army Regulation 40-66, Medical Records and Quality Assurance Administration, 15 July, 1980, Chapter 9.

<sup>7</sup>InterQual, pp. 35-36.

<sup>8</sup>Interview with Major Robert Ridenour, Assistant Chief, Department of Pathology, DeWitt Army Community Hospital, Fort Belvoir, Virginia on 16 April 1982.

<sup>9</sup>Interview with Colonel Jose Ossorio, Chief, Professional Services, DeWitt Army Community Hospital, Fort Belvoir, Virginia on 10 March 1982.

<sup>10</sup>Record of Quality Assurance Studies, Office of the Chief, Professional Services, DeWitt Army Community Hospital, Fort Belvoir, Virginia as of 30 April 1982.

<sup>11</sup>Interview with Major Thomas Hoffer, Chief, Emergency Medical Service, DeWitt Army Community Hospital, Fort Belvoir, VA 22060, on 14 March 1982.

<sup>12</sup>Interview with Major Rideuour.

<sup>13</sup>Telephone Interview with Lieutenant Colonel Author Badgett, Chief, Biostatistical/Division Patient Administration System and Biostatistical Agency, US Army Health Services Command, Fort Sam Houston, Texas, on 13 April 1982.

<sup>14</sup>Interview with Captain Michael Coleman, Chief, Outpatient Records, Patient Administration Division, DeWitt Army Community Hospital, Fort Belvoir, VA on 28 April, 1982.

<sup>15</sup>U.S. Department of the Army, Army Regulation 340-18-9, Maintenance and Disposition of Medical Functional Files, 1 December, 1979, p. 27.

<sup>16</sup>Presentation by Colonel Kenneth Lingel, Deputy Chief of Staff for Resource Management, Headquarters US Army Health Services Command, Fort Sam Houston at the Ambulatory Patient Care Conference, Fort Sam Houston, TX on 1 April, 1982.

<sup>17</sup>Robert W. Broyles and Colin M. Lay, Statistics in Health Administration, Volume I, (Germantown, Maryland, 1979), p. 291.

<sup>18</sup>Ibid., p. 30.

<sup>19</sup>US Army Medical Department Activity, Fort Belvoir, Virginia, Monthly Inventory and Audit of Controlled Substances, Fort Belvoir, Virginia dated 15 March and 26 April, 1982.

<sup>20</sup>Interview with LTC Thomas Puskas, Chief, Outlying Clinics, Department of Family Practice, DeWitt Army Community Hospital, Fort Belvoir, Virginia, on 13 April, 1982.

**CHAPTER V**  
**DISPLAY OF DATA**  
**Statistical Techniques**

The data to be utilized in conducting outpatient quality assurance studies represents a broad spectrum of quantifiable measures. Waiting times are expressed in minutes and are best analyzed by employing queuing techniques. Drug utilization studies involve both efficacy of treatment and cost per treatment. These two problems require different types of statistical analysis. The efficacy problem is outcome oriented and in order to demonstrate the effectiveness of one treatment over another a hypothesis testing problem is necessary. The cost-benefit situation is best answered in terms of a financial management economic-analysis context. Multi-criteria audits can be used to discover composite compliance rates, or to target specific shortcomings by either criteria or providers. These different expectations require different statistical tests such as hypothesis testing, analysis of variance and chi-squared techniques. The purpose of this chapter is to address the most common quality assurance problems the outpatient providers will encounter and provide a framework for assessing study results in quantifiable terms. The discussion is not an attempt to replace a statistics text book and is presented only as a basic guide.

**Hypothesis Testing**

Hypothesis testing is applicable to studies which have a predetermined compliance level which will be used to judge performance based on clinically sound criteria. For example, the pathologists are concerned whether "stat" tests are actually being evaluated by the staff appropriately. The sole criteria for

evaluating the situation might be "annotation in medical records of test results within 24 hours of completion of test." In order to test this criteria, a number of decisions need to be made:

1. Determine an acceptable compliance rate. In many areas a goal of 100% is mandated. In this example 90% will be used.
2. Establish a level of confidence. This is the probability of being correct. In this example the pathologist desired a 95% probability of being correct.
3. Develop the hypothesis and define the terms. The expression of the hypothesis in statistical notation is not necessary but is helpful for convenience. To be able to use notation, a legion of symbols to be used is included.

$P$  = The population portion

$n$  = The sample size

$x$  = The number of samples which fulfill the criteria

$p$  = The sample proportion, the estimate of  $P$

$\sigma_p$  = The standard error of the sampling distribution of the sample proportion

$H_0$  = The null hypothesis

$H_A$  = The alternate hypothesis

$P_0$  = A number representing a hypothesized value of the population

$\alpha$  = Level of significance,  $1 - (\text{level of confidence})$

$E$  = Maximum tolerable difference or error between the population portion and the sample estimate

$Z_{\alpha}$  = The standardized normal variate use in a one-tail

$CV$  = The critical value

$Z_{\alpha/2}$  The standardized normal variate use in a two-tail test.

Not all the values for the symbol shown above have been computed as of yet. At this point the hypothesis can be developed.

$H_0: P \geq .90$ -- (the population proportion complying with the criteria is equal to or greater than 90%)

$H_A: P < .90$ -- (The alternative hypothesis is that the compliance rate is less than 90%)

$\alpha = .05$ --- (95% probability of being correct)

$Z_{\alpha} = 1.65$ -- Standard normal value of  $\alpha = .05$  in a one tail test of significance (Z value)

4. Determine the sample size. Several decisions need to be made in estimating the sample size.

a. Determine the maximum percentage of error in estimating the portion of the population which is fulfilling the criteria. The pathologist wants the estimate of the population portion not to differ from the actual population portion by more than .05 (5%).

b. Compute the sample size. One last decision has to be made prior to computing an estimate of what the portion of compliance is. Despite the incongruency since the purpose of the audit is to determine the portion, some value must be assigned. An estimate of 50% will result in the largest sample size estimate, deviation either side of 50% will decrease the sample size estimate. A small pilot audit might suggest a figure of 70% or the pathologist may just have an intuitive estimate. If in retrospect the sample size was too small the preciseness of the estimate will suffer. Similarly, if the sample size is actually greater than necessary the precision of the estimate will increase. In this example a pilot study

suggests that a compliance rate is approximately 80%. The following information is now available.

$E = .05$  Maximum difference or error between the population portion of compliance and the sample estimate.

$P = .80$  Estimate of actual compliance based on pathologist's estimate

$\alpha = .05$  Level of significance

$Z_{\alpha} = 1.65$  Z value

To compute the sample size estimate the following formula is used:

$$n = P(1-P) \left( \frac{Z_{\alpha}}{E} \right)^2 = .80(.20)(1.65/.05)^2$$

$$.80(.20)(33)^2 = .80(217.8) = 174.2 \text{ or } 175, \text{ always round up}$$

5. Conduct the audit and record results. The number of charts which fulfill the audit criteria  $x$  is divided by the number of records audited,  $n$  or sample size, to arrive at  $p$ , the sample proportion or estimate of  $P$ . Continuing this example 180 records were audited,  $n = 180$ , and 150 met the criteria,  $x = 150$ . The calculation of the sample portion is:

$$p = x/n = 150/180 = .833$$

6. Test the hypothesis. The test of the hypothesis involves the following information:

$$n=180, \alpha=.05, x=150, P_0=.90, Z_{\alpha}=1.65,$$

$$CV=\text{unkown}, p=\text{unkown}.$$

$$H_0: P \geq .90$$

$$H_A: P < .90$$

The criteria value represents the decision point in the hypothesis test. The critical value is a combination of the hypothesis value of the population with an adjustment which is the standard error of the sampling distribution. The result is a value below which the null hypothesis can be rejected. The calculating formula for

$\sigma_p$  is:

$$\sigma_p = \sqrt{\frac{P_o(1-P_o)}{n}} = \sqrt{\frac{.90(1-.90)}{180}} =$$

$$\sqrt{\frac{.09}{180}} = \sqrt{.0005} = (.0223607)$$

The critical value (CV) =  $P_o - Z_{\alpha}\sigma_p$

$$.90 - 1.65(.0223607) =$$

$$.90 - .037 =$$

$$.863$$

Decision rule:

ACCEPT  $H_o: p \geq .863$   
 REJECT  $H_o: p < .863$

The value of  $p = .83$  (i.e.,  $p = \frac{150}{180}$ ) therefore the null hypothesis is rejected and the alternate hypothesis is accepted. Referring back to the development of the criteria for the study it can be concluded that "stat" test results are not annotated in the medical record within 24 hours. Before concluding the pathologists may want to check the possible error in estimating the population portion based on the sample size and portions. This relates back to the sample size estimate formula,

$$n = P(1-P) (Z_{\alpha}/E)^2$$

That formula can be manipulated to solve for E,

$$E = Z_{\alpha} \sqrt{\frac{P(1-P)}{n}}$$

Based on the survey results the value of E is:

$$E = 1.65 \sqrt{\frac{.83(1-.83)}{180}} =$$
$$1.65(.027998) = .046$$

The final value of E (.046) is less than the value stipulated earlier in the problem (.05) therefore the sample size estimate was adequate.

The pathologist is at step 9 of the protocol outlined in the previous chapter for conducting an audit. The study will be complete by fulfilling the next four steps outlined.

Hypothesis testing is not applicable to all types of quality assurance studies but when applicable it does provide a relatively simple valid statistical testing methodology. The level of sophistication of the testing requirements should be within the grasp of any health professional in the hospital. The specifics of the process may have to be refreshed and any medical library contains ample reference material.

In the previous example several points were glossed over. They included one tail versus two tail test, the use of a Z table, and the requirement for large versus small sample size considerations. Rather than expand on the technical aspects of these issues the reader is referred to the statistical textbooks in the bibliography. Those authors present a very readable explanation of hypothesis testing considerations.

### Descriptive Statistics

The occasion may arise that a study concerned with "discovery" is to be instituted. Discovery is useful in describing a situation for which a performance

objective is not established. For example, the Chief, Professional Services may be interested in the number of times a patient receives a busy signal when attempting to call for a medical appointment. The obvious method to obtain an approximation of this problem is to conduct a data gathering experiment which will consist of  $n$  elements which will together comprise the sample. The elements discussed earlier regarding factors which should be considered in sampling apply i.e., timeliness, cost, precision, randomness, and independence. The outcome of the sample should provide a minimum of the following elements:

$x$  = Value of the measurement in the sample (unsuccessful number of phone attempts)

$n$  = The sample size

$\bar{x}$  = The sample mean (arithmetic average)

$S^2$  = The sample variance

$s$  = The standard deviation of sample

mode = The most common value in the sample

$R$  = Range of values

median = The middle value or the average of the two middle values if an even number of values in the range

In addition to the above data the sample results should contain a graphic representation of a frequency polygon (Figure 5). This graphic presentation enables the observer to judge the symmetry and/or skewness of the sample. This visual presentation alleviates a great deal of narrative description as the picture speaks for itself.

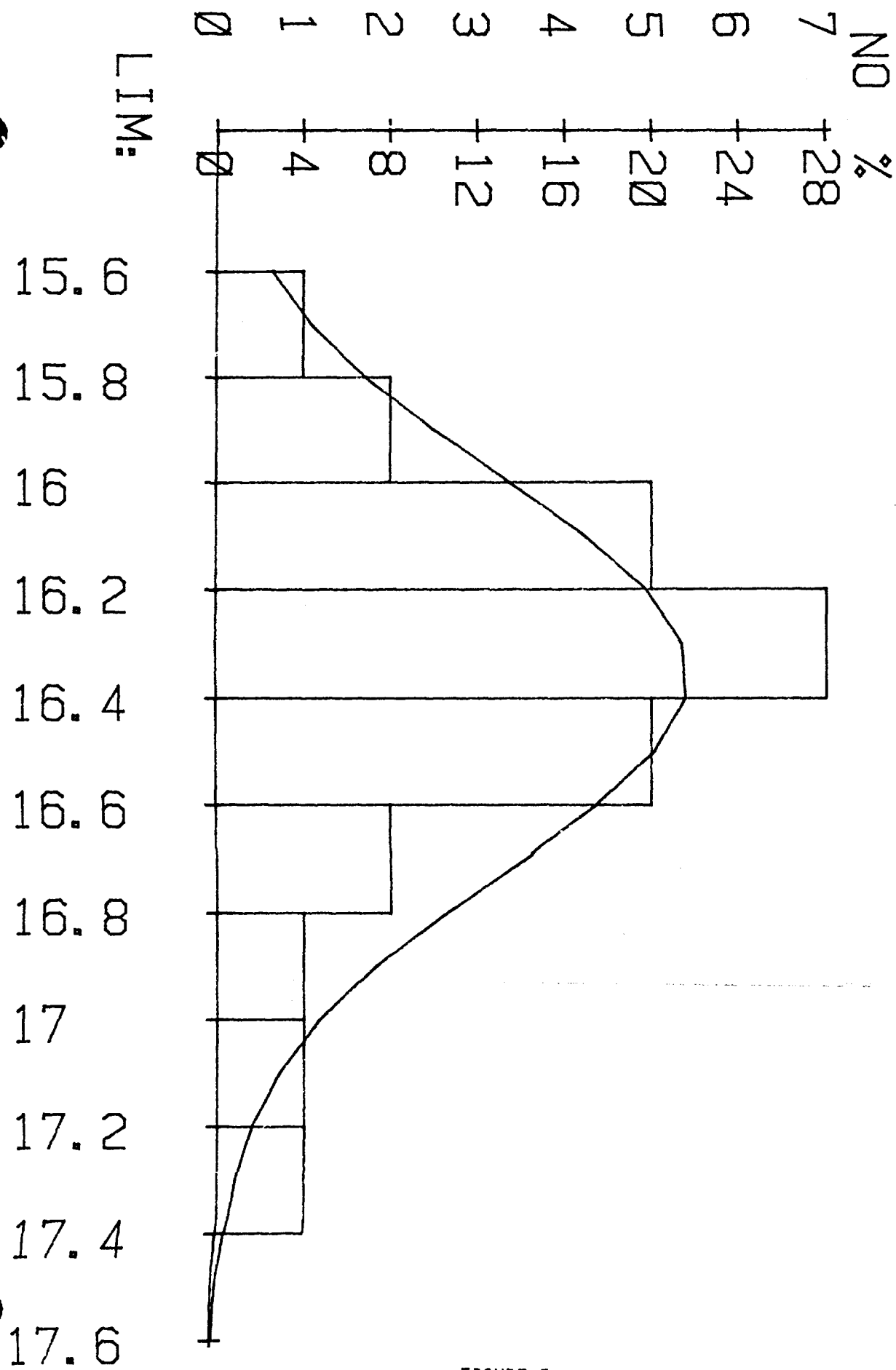


FIGURE 5  
67

The actual calculation of the statistics of a sample and the construction of the visual presentation of the data can be performed on the Hewlett-Packard minicomputer located in the hospital. Use of the hospital's minicomputer will be discussed later in this chapter.

Subsequent to data collection, computation of the statistics, and visual presentation, evaluation of the sample results can be undertaken. The sample results may reveal what is perceived as a problem or the results may be favorably received and the process is ended. If the results indicate a problem then the data becomes the baseline data for evaluating the effectiveness of follow-up actions. The follow-up hypothesis can either be based on the initial results or another objective. For example if an average ( $\bar{X}$ ) of 3 unsuccessful attempts to reach the appointment clerk preceeded the actual telephone discussion that statistic ( $\bar{X}$ ) or a lower one, 2 attempts could be the hypothesized value.

$$\begin{array}{l} H_0: \mu \geq 3 \text{ unsuccessful attempts} \\ H_A: \mu < 3 \text{ unsuccessful attempts} \end{array} \quad \text{or} \quad \begin{array}{l} H_0: \mu \geq 2 \text{ unsuccessful attempts} \\ H_A: \mu < 2 \text{ unsuccessful attempts} \end{array}$$

The sample is extremely useful in developing a basis for decision making and subsequent evaluation of follow-up action effectiveness.

### Analysis of Variance

The analysis of variance test is useful in evaluating the effectiveness of quality assurance follow-up actions. The analysis of variance test enables the individual conducting a study to evaluate the effectiveness by comparing the compliance rates for the various criteria in two random samples by comparing the sample variances. An explanation of the reasons why an evaluation of sample variance can be used to determine whether the compliance rates are equal or

statistically different is again best left to the statistics textbooks.

An example of the analysis of variance test will be demonstrated via the audit data included in the corneal abrasion audits (Appendix D and E). The criteria for the audit was developed (Appendix D), and an initial audit of 32 records revealed the following non-compliance rates:

Criteria:

	Initial	Follow-up
a. No mechanism of injury noted	12.5%	10.5%
b. No subjective systems listed	40.6%	36.8%
c. No visual activity noted	21.8%	36.8%
d. No fluorescein test cited	46.8%	36.8%
e. No eye inspection noted	0%	0%
f. Diagnosis not given as "corneal abrasion"	9.3%	10.5%
g. Treatment plan did not list topical antibiotic	65.6%	21.0%
h. Treatment plan did not list pressure patch	50.0%	36.8%
i. Follow-up did not specify return visit within 24 - 48 hours	34.3%	0%

The results of the study prompted actions to educate the emergency room staff on the criteria which would be the yardstick for further evaluation. The effectiveness of the follow-up actions was measured by an audit of 19 charts using the same criteria and the results are listed in the follow-up heading above. Taking into account the negative approach of the audit and the measurement of non-compliance rather than compliance, the follow-up figures reflect a general overall improvement in care. The question is whether it is statistically significant. The analysis of variance test provides the framework for determining whether the

improvement is based on an actual increase in the performance of the emergency room staff or if the improvement can be attributed to chance.

To illustrate the analysis of variance test, the data for the corneal abrasion test was fed into the hospital's minicomputer. The calculations involved in performing this test are tedious and best left to a computer. The test can be done manually, but the time involved in manually calculating the results would be too great to reasonably expect a statistics novice to invest. The printout (Figure 6) provides a number of key values for the individual who conducts the study to review. The top array of data listed as treatment #1 and #2 is merely the non-compliance rates for the initial (treatment) and the follow-up (treatment 2) audits. Next, the computer calculated the mean (average) non-compliance rates for treatment 1 and 2. The variance, i.e., 471.1536 and 262.6319 respectively is the sum of all the (observed values - mean)<sup>2</sup>. The initial study had a non-compliance rate of 31.2111% and the follow-up audits non-compliance rate was 21.22%. The decrease in noncompliance (10%) is sizeable but the key to determining if this reduction was statistically significant is the F statistic. In this example the F statistic is 1.2733. If the auditor wants to be 95% confident that the difference in the mean values of the sample results is not due to chance, a critical value of the F statistic, in this case of 1 degree of freedom in the numerator (DF NUM) and 16 degrees of freedom in the denominator (DF DEN), the critical value, 4.49, can be extracted from any statistics textbook. The calculated F statistic 1.2733 is less than F critical, 4.49, therefore the auditor is not able to state that the differences in the non-compliance rates are different and be 95% confident of being correct. The printout shows the level of significance associated with an F statistic of

# ONE WAY ANALYSIS OF VARIANCE

## TRT # 1

12.50	40.60	21.80
46.80	9.30	65.60
50.00	34.30	0.00

## TRT # 2

10.50	36.80	36.80
36.80	0.00	10.50
21.00	36.80	0.00

TREATMENT #	1	OBS. #	VALUE
		1	12.50
		2	40.60
		3	21.80
		4	46.80
		5	9.30
		6	65.60
		7	50.00
		8	34.30
		9	0.00

TREATMENT #	2	OBS. #	VALUE
		1	10.50
		2	36.80
		3	36.80
		4	36.80
		5	0.00
		6	10.50
		7	21.00
		8	36.80
		9	0.00

TRT. #	N	MEAN	VARIANCE
1	9	31.2111	471.1536
2	9	21.0222	262.6319

## ANALYSIS OF VARIANCE

SOURCE/DF	SS	MS	F
TOTAL 17	6337.4		
TRTS 1	467.2	467.2	1.3
ERROR 16	5870.3	366.9	

DF NUM= 1

DF DEN= 16

F= 1.2733

(Figure 6)

PROB F >

1.2733=

.2758

71

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1.2733. By subtracting the level of significance from 1, the level of confidence is revealed ( $1 - .2758 = .7242$ ). In any statement regarding the difference between the non-compliance rates the auditor could only be 72.4% certain the difference was due to actual changes in the staff's compliance with the audit criteria.

The analysis of variation test appears to be extremely complicated at first glance but with the aid of the computer the clinician has a powerful analytic tool at his disposal. The F statistic is the key to evaluating the test results and the Hewitt-Packard minicomputer automatically calculates not only the F statistic but also the level of significance for the test. By subtracting the level of significance from 1, the clinician has the level of confidence which the results represent. The determination of what level of significance is necessary to demonstrate a real change depends on the level of risk the individual conducting the study is willing to take in accepting the results.

#### Additional Statistical Techniques

Hypothesis testing, descriptive statistics, and analysis of variance can be used in a great number of quality assurance studies. But these three statistical procedures will not cover all possible situations which may be encountered. The individual conducting the quality assurance study needs to be aware that there is a wide assortment of statistical tests which can assist in determining the significance of the problem or the effectiveness of the corrective action. Many of the tests are included in the library of programs available on the Hewlett-Packard minicomputer. The library contains three packages of programs which can be used extensively in the quality assurance program.

critical value of F is 4.26. The auditor can evaluate the computed F statistic for the rows and columns. Both of the computed F statistics exceed the critical value of F .05 (2,9). Therefore a statistically significant conclusion can be drawn concerning the equality of the mean for the three rows and columns. The critical value for the interaction between the rows and columns (R x C) is  $F_{.05} (df = 4, 9) = 3.63$ . The computed F statistic (.8) indicates that the interaction between the column observation and the row observations does not produce an effect which is statistically significant.

#### Analysis of Variance

SOURCE	DF	SS	MS	F
Total	17	44.5		
Rows	2	22.3	11.2	10.6
Cols	2	9.3	4.7	4.4
RXC	4	3.3	0.8	0.8
Error	9	9.5	1.1	

$$F_{\text{critical}} (\text{Rows}) = F_{.05} (df = 2, 9) = 4.26$$

$$F_{\text{critical}} (\text{Columns}) = F_{.05} (df = 2, 9) = 4.26$$

$$F_{\text{critical}} (\text{Row X Columns}) = F_{.05} (df = 4, 9) = 3.63$$

#### Figure 7

The other method to determine the probability associated with the computed F value is to utilize the next program in the General Statistics Package. This program deals with various types of distributions and allows the user to determine exact probabilities associated with any one of the following distributions:

- a. Normal,
- b. Student,

The three packages which contain the programs are:

1. The General Statistics Package,
2. The Regression Analysis Package, and
3. The Graphic Presentation Package.

The General Statistics Package has the following programs which are applicable to the quality assurance program:

1. One sample analysis - this program will provide a basic statistical description of a set of data. An example of the output is at Appendix K.
2. Paired sample analysis - this program will conduct a variety of statistical tests, to include descriptive statistics, paired F statistics, regression analysis for parametric values, (i.e., values from a normal universe). There are also tests available to test nonparametric data. These tests include: The Spearman's Rho, Kendall's Tau, sign test and Wilcoxon signed rank test. An example of the output is at Appendix L.
3. Test statistics - five separate routines are available to perform specific statistical tests. They are:
  - a. Chi-square test,
  - b. R x C contingency test,
  - c. Two sample T-test,
  - d. One-way analysis of variance, and
  - e. Two-way analysis of variance.

The Chi-square test calculates the probability that observed outcomes of various events are significantly different than the expected outcomes. This routine will calculate a chi-squared value and probability for either unequal or equal expected values. An example of the output is at Appendix M.

The R x C contingency test computes a chi-squared value for measuring the independence of variables. An example of the output is at Appendix N.

The two sample T-test computes the basic statistics for two small samples (size less than 30) and also computes a t-value and the approximate probability. An example is at Appendix O.

The one-way analysis of variance test was used to produce Figure 6, in the previous discussion. The routine is extremely useful to perform this rigorous statistical test. An example of output is at Appendix P.

The two-way analysis of variance test provided information to enable the auditor to analyze the variations in test values by both row and column as well as the interactive effect. The output is shown at Appendix Q. This particular test does not compute the probabilities associated with the values shown in the analysis of variance table.

The individual conducting the study has two choices for assessing the significance of the F values. The critical value of the F statistic can be extracted from an F-distribution chart (an appendix to most statistics book) by identifying three values: the level of significance, normally either .05 or .01, the degrees of freedom in the numerator, and the degrees of freedom in the denominator. Using the example below (Figure 7) the degrees of freedom in the numerator is the value listed under "DF" and is next to each of the sources, i.e., rows, columns and row and column. The degrees of freedom in the demonimator is shown as the degrees of freedom "DF" of the error. By stipulating a level of significance of .05 with 2 degrees of freedom in the numerator and 9 degrees of freedom in the denominator

- c. Central F,
- d. Chi-squared,
- e. Binomial,
- f. Poisson,
- g. Weibull, and
- h. Hypergeometric.

In the case of the F statistic the auditor merely has to call up the program, specify the distribution desired, and enter three values:

1. The degrees of freedom in the numerators,
2. The degrees of freedom in the denominator, and
3. The value of F.

The computer will calculate the level of significance associated with the data entered to an accuracy of seven digits. This program eliminates the need for the user to refer to a table and manually determine the probability.

The last program in the General Statistics Package is Multiple Linear Regression. This program enables the operator to determine if a correlation exists between a dependent variable and up to 12 independent variables. The program will analyze the data and compute the following:

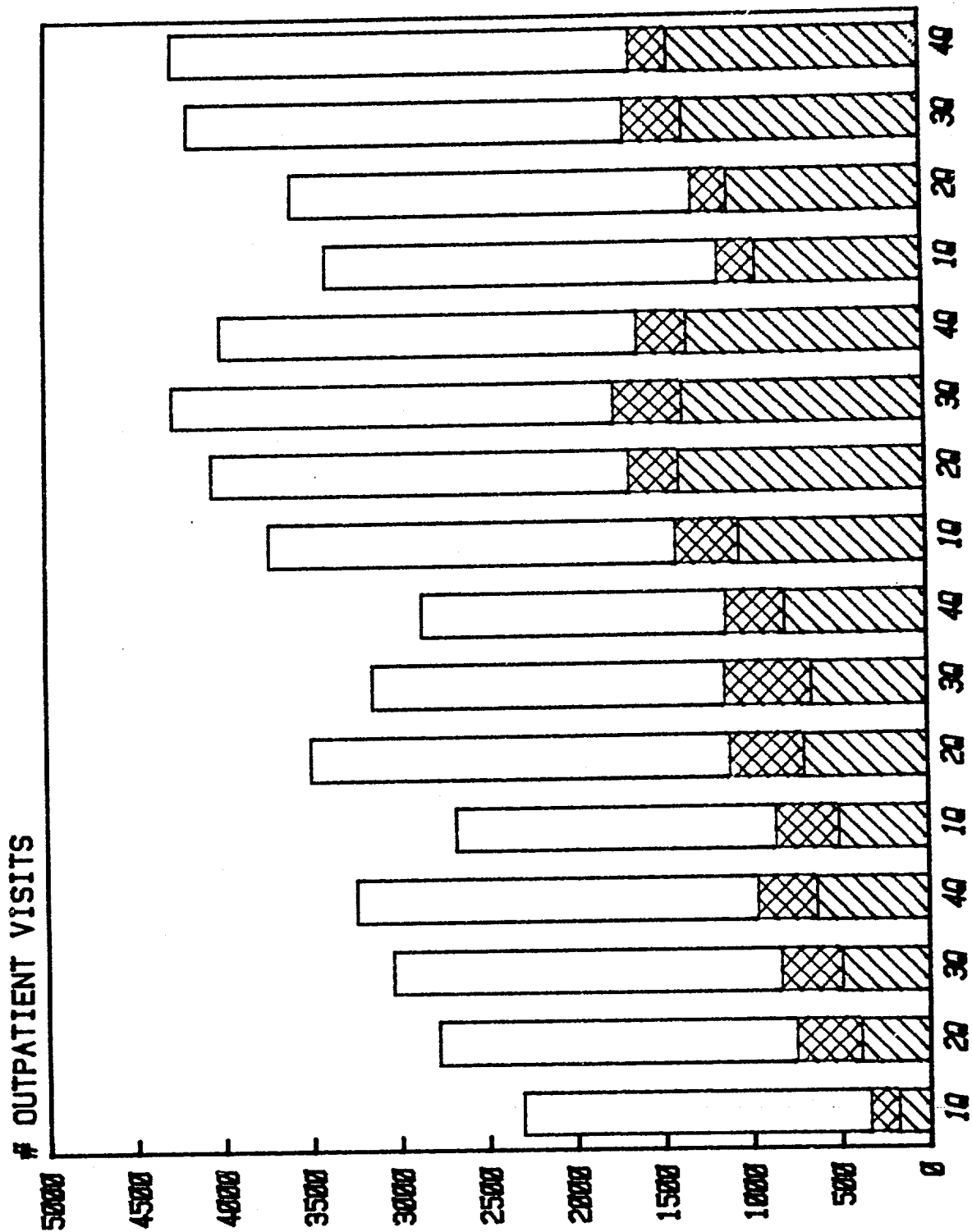
1. Mean and variance for all variables,
2. Correlation matrix,
3. Analysis of variance table,
4. Estimates of variances,
5. F-value for regression coefficients, and
6. Multiple correlation coefficients.

An example of the program output is at Appendix R. The multiple linear regression program performs a complex analysis very quickly. The individual evaluating the results needs an understanding of the different types of information provided and how to use the result in formulating conclusions. The operators need to consult the literature or discuss the problem with a knowledgeable individual before attempting to use this program.

Another package of programs designed for the Hewlett-Packard minicomputer, the Regression Analysis Package, consists of programs which represent an extensive array of routines to evaluate regression analysis problems. The programs include simple linear regression, multiple regression and a sophisticated assortment of techniques to manipulate and evaluate regression results. This package of programs would be useful to those individuals who are conducting indepth research. The applicability of this particular collection of programs would be limited in the normal course of quality assurance studies. Individuals who might desire to publish results on a particular problem and need more powerful analytic tools than is provided by the regression analysis program in the General Statistics Package may be interested in this collection of programs.

The Graphic Presentation Package, the third computer package in the library, is an optional feature of the minicomputer which enables the operator to produce professional looking charts, graphs, and drawings. The program allows an output (i.e., bar graphs, line graphs, and pie charts) to be designed on a video screen and then transferred to a presentation media, either paper or view-graph (Figures 8, 9, 10). The results are impressive but the time necessary to learn how to operate the program is prohibitive. Like the Regression Analysis Package, the applicability of

# OBSTETRICS CLINIC DEWITT HOSPITAL



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Fig. 8/78

# OBSTETRICS CLINIC DEWITT HOSPITAL

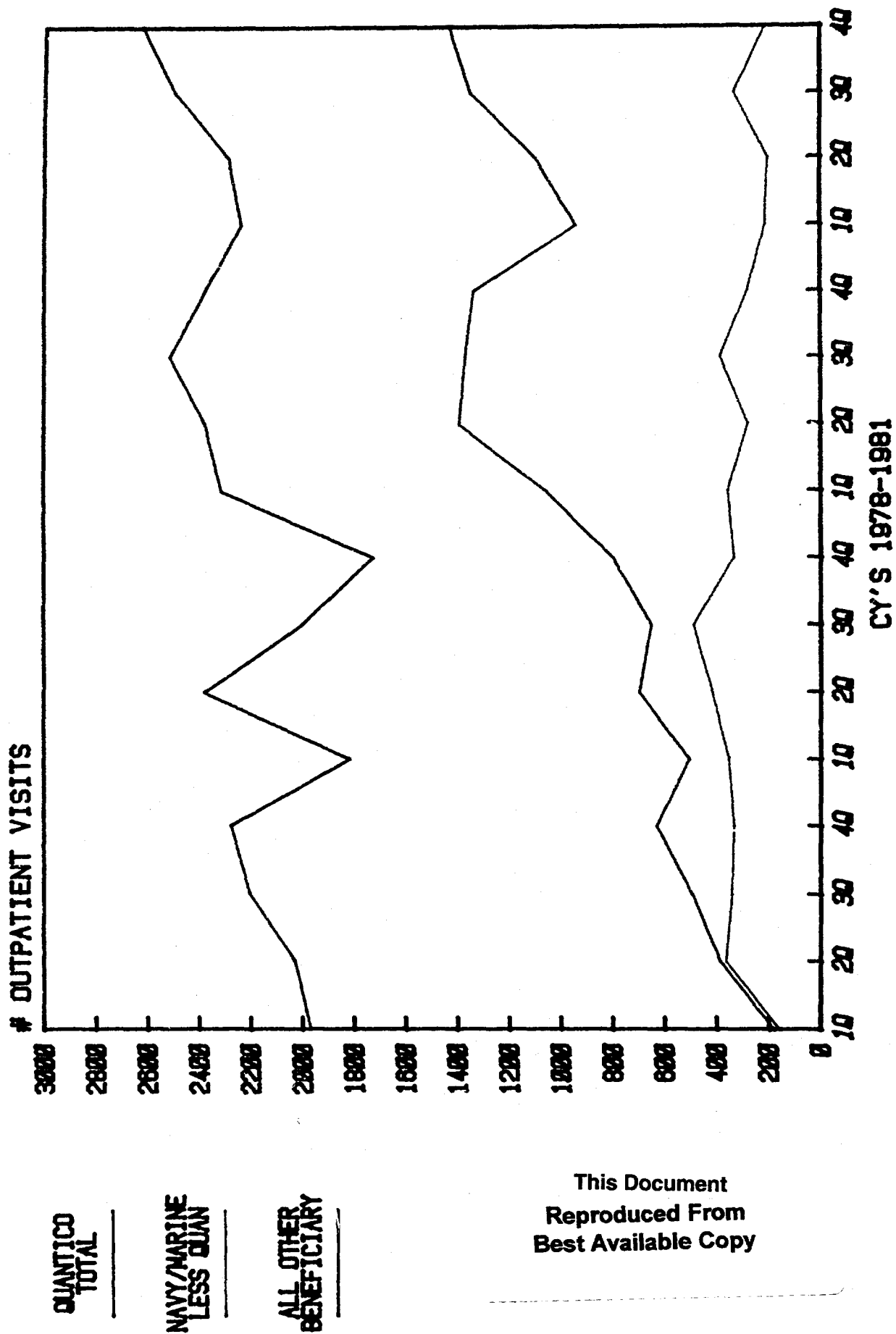
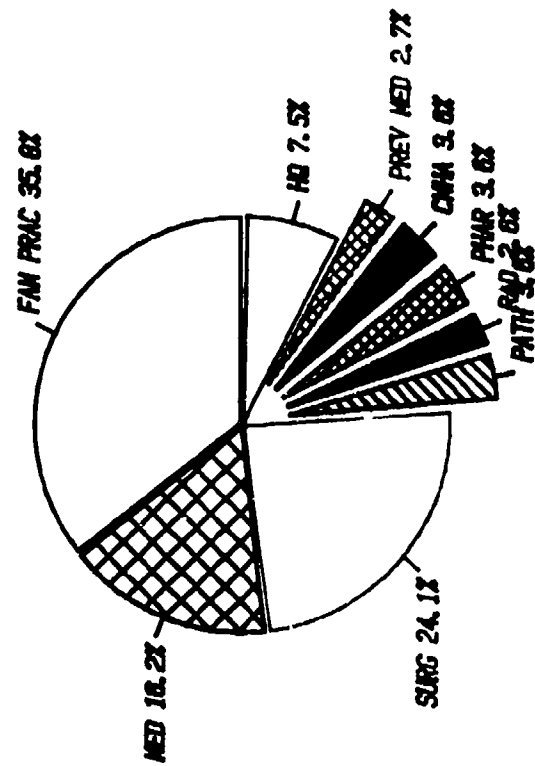


Fig. 9/79

# FY82 PROF SVCS TDY TARGETS

## REGISTRATION FEES TARGET



## TRAVEL TARGET

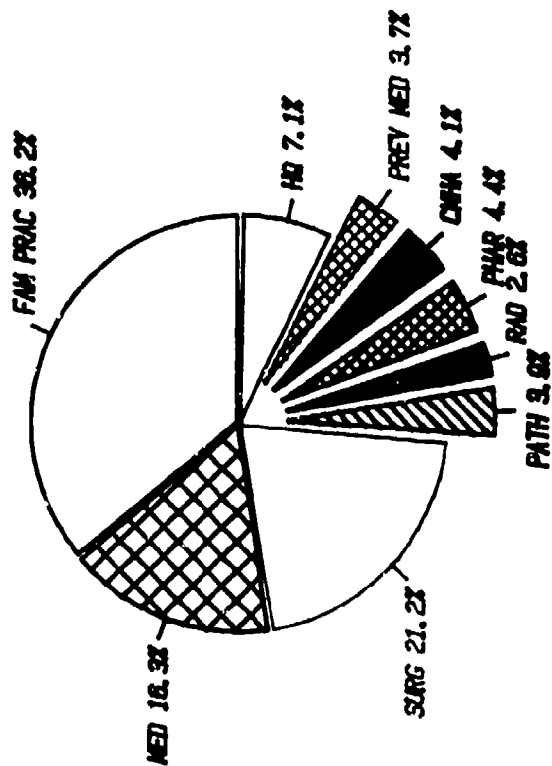


FIGURE 10

this program to normal quality assurance studies is limited. Any individual who desires to produce a professional quality chart or graph utilizing the minicomputer has to be willing to devote several hours to that task. As with the previously discussed programs, this tool should be limited to articles for publication and formal presentations.

### Data Collection Worksheets

The problem of collecting the proper data can be eased by developing data collection forms which facilitate the recording of pertinent information.

The thrust of the outpatient clinical quality assurance programs will be the evaluation of patient care based on valid criteria. In the audit setting certain information must be recorded for analysis. That information includes:

1. Provider identification.
2. Criteria identification.
3. Patient identification. In concurrent audits the ability to identify the patient whose record is being audited is critical. Significant shortcomings in the completeness of the care provided may result in follow-up action being initiated to correct deficiencies. One of the primary advantages of concurrent audits is the potential to quickly identify deficient patient care and to take corrective actions to ameliorate the situation. Therefore the identity of each audited record is important.
4. Criteria evaluation findings. The audit results should be recorded in such a way that a reviewing official can identify the source of problems. This involves the results of the providers performance in each criteria, the providers aggregate performance, and the review of compliance based on both individual criteria and composite criteria.

PROVIDER CODE 1

CRITERIA

PATIENT I.D. 2

[illegible]

1. Use identification code, do not us name
2. Patient identification consist of:beneficiary code,last four digits of SSAN, Last name.

Example: 30, 1234, Jones.

FIGURE 11

should be entered in the appropriate block in the bottom right portion of the worksheet. At this point the auditor can review the performance of the individual provider by either criteria or individual patient results. The statistical tests discussed earlier can be employed to test the significance of the results.

In those instances in which more than one provider have been audited the worksheet shown on the following page (Figure 12, Summary Audit Matrix) enables the totals of the individual provider's worksheets to be recorded. To complete this worksheet the auditor merely transfers the information on the individual worksheet to the summary matrix. The criteria column is merely a reiteration of the pre-established criteria. The provider identification block should be completed with the same provider code as used on the individual worksheets. The actual and possible figures for each criteria are transcribed to the summary matrix. The compliance percentage could be entered instead of the actual/possible figures if each of the providers had an equal number of records audited. The probability of having equal possible values for each provider is minimal. Therefore to avoid distorting the cumulative percentage, the actual and possible values are totaled and the percentage value is determined from the resultant totals.

The blocks in the bottom right hand portion of the matrix are provided to record the overall values of the audit results. The "actual" and "possible" values in that block should be the same if the horizontal or vertical marginal values are added. A check of the correctness of the matrix can be done by adding the horizontal and vertical marginal values to insure the totals are the same. The calculation of the overall compliance rate should be computed based on the

**\*Use identification code, do not use name**

CRITERIA

PROVIDER CODE\*

ACTUAL  
POSSIBLE

PERCENTAGE

85

cumulative marginal values of the actual and possible outcomes. The reason for computing the overall compliance rate on the total value of the actual/possible values is the same as was mentioned previously in determining the marginal percentages, i.e., different values of the denominator.

The summary audit matrix provides the auditors a concise array of data by which a number of statistical tests can be performed. One and two way analysis of variance, hypothesis testing, and chi-squared test can be performed from the information provided. In addition to statistical testing, the data provided can also be used to calculate descriptive statistics. The matrices are not a panacea for all data collection situations but they are versatile and should provide assistance in most situations in which data is to be collected for quality assurance studies.

#### Summary

The capabilities of the hospital owned Hewlett-Packard minicomputer have been discussed previously. The minicomputer has one serious limitation; the quality of the user-manuals. The manuals are not for a novice operator. The instructions are short, the error messages are confusing, and the logic behind the programs is not clear. In short it would not be beneficial for a first time user to attempt to take advantage of the minicomputer's abilities without the assistance of a knowledgeable individual. With the assistance of a competent individual, the novice will be able to enter the needed data and evaluate the results.

The technical aspects of the computer programs require that the user not only have assistance in actual keyboard functions necessary to manipulate the program but also the user needs to know what data is needed by the program. To preclude the frustration of not being able to complete a program due to a lack of required

information, the individual performing the analysis should consult the users manual and/or a knowledgeable individual. The data collection efforts should be focused on those items which are necessary to conduct the appropriate statistical tests. Generally, the minicomputer requires the same information which would be needed for manual calculations; the primary difference is format. If the data is not easily manipulated into the format the computer requires, much time can be wasted at the keyboard.

The identification of an individual to provide guidance and assistance for the minicomputer operations presents a problem. The hospital has the minicomputer but a position is not authorized for a computer operator. The need for an operator is acute and much is to be gained from the utilization of automated statistical assistance. Currently, there is a very limited number of individuals who have used the computer, and those who have used it have not utilized the entire array of programs. To rectify this shortcoming consideration needs to be given to training several individuals involved in the quality assurance program in the operation of the minicomputer. The identification of consultants for computer assistance in support of quality assurance studies would remove a significant hurdle in performing the analytic portion of a study.

### Footnotes

<sup>1</sup>R.C. Gulezian. Statistics for Decision Making, (Philadelphia, 1979), p. 281.

## CHAPTER VI

### CONCLUSION

Quality assurance in the ambulatory care setting can be accomplished within the current organizational structure of Army community hospitals. The implementation of a program needs to be based on solid principles. The thrust of the program should be based on imparting optimal health care within the constraints under which each facility operates. To determine what would constitute optimal health care, the organization should assess the health services it provides. The survey of medical complaints and diagnoses is one basis for assessing frequency or volume of service. Once this information is available the professional staff can initiate actions to assess the quality of care.

The assessment of care should require decisions on:

1. What should be assessed.
  - a. Structure
  - b. Process
  - c. Outcome
2. What type of judgement should be used.
  - a. Explicit
  - b. Implicit
3. What type of data retrieval methodologies should be employed.
  - a. Prospective
  - b. Retrospective
  - c. Concurrent

Subsequent to data collection the analysis of data is critical. Based on the outcome of the data analysis, the professional staff must determine what, if any, corrective actions should be taken. At this juncture the activity conducting the study needs to communicate with the central quality assurance activity. The transmittal of information enables the central committee to assess the need for the allocation of additional resources, to disseminate the information to other similar activities, to assign priorities, to communicate action to the Executive Committee, and to monitor follow-up.

The actions taken to rectify deficiencies noted in the first assessment must be documented and only when follow-up analysis reveals improvement is the quality assurance process effective.

The use of statistics in demonstrating improvement in the quality assurance process is viewed as an aid to the professionals conducting QA studies. With the assistance of a minicomputer the professional has a wide array of statistical techniques available. In order for the professional to capitalize on the advantages of computer assisted statistical applications, a consultant must be identified. The consultants need to be familiar with quality assurance principles, statistical testing techniques, and the computer statistical programs.

The quality assurance program for ambulatory care should not be a repeat of the inpatient chart audits which were conducted in the 1970's. Avoiding the pitfall of assessing care but not taking corrective action and insuring follow-up audits to validate the appropriateness of the corrective actions must be constantly addressed. The effectiveness of the program depends on the leadership exhibited

by the members of the QA Committee and the Executive Committee. Without their guidance the QA efforts of the institution will be sporactic.

The importance of quality assurance commands the fullest support of the hospital leadership and the potential benefits justify the expenditure of that effort.

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APPENDIX A  
QUALITY ASSURANCE PLAN

DEPARTMENT OF THE ARMY  
Headquarters, US Army Medical Department Activity  
Fort Belvoir, Virginia 22060

Memorandum  
No. 40-91

22 December 1980

Medical Services  
QUALITY ASSURANCE PLAN

1. Purpose. The purpose of this memorandum is to establish a written plan that will serve as a basis for a comprehensive, fully integrated, problem-focused approach to a Quality Assurance Plan for US DeWitt Army Hospital (USDAH).
2. General. The overall goal of the Quality Assurance Program (QAP) is to demonstrate USDAH's comprehensive and integrated approach to quality assurance. The principal objective of the QAP is to facilitate the ongoing identification and assessment of problems associated with clinical performance and the delivery of patient care/clinical performance with the intent of improving such care to an optimal level within available resource constraints. The Executive Committee shall serve also as the Quality Assurance Committee for USDAH.
3. Scope. Quality Assurance (QA) refers to all organizational activities that are designed to foster or evaluate patient care. It includes all departments, disciplines, practitioners, ancillary personnel, committees, and administrative personnel. The Commander, US DeWitt Army Hospital is recognized as the delegated and ultimate authority to represent the governing body (Office of the Surgeon General) at the local level. Health care providers will participate in peer review and all patient care processes will be subject potentially to evaluation.
4. Definitions and Goals. Evaluation of actual performance will be measured against clinically valid criteria. Clinically valid criteria is defined as standards, objectives, or criteria that are based on a review of professional standards as reflected in current clinical literature. The criteria "should be expected to result in improved patient care/clinical performance." (JCAH 1981 Manual, p. 152) Criteria developed within the hospital or in conjunction with other area hospitals may also be used as appropriate. Structure, outcome, or process assessments may be used concurrently, retrospectively or prospectively. Formal or informal means (or studies) may be used in investigating the known or suspected problem area(s). In all cases written documentation will be maintained as evidence of all of the QA studies and/or investigations. Credit shall be given for QA investigations or studies which result in the finding that no significant problem existed and that therefore no corrective action is required. Both informal efforts and formal studies, as appropriate to the situation, can be used in the QAP provided the studies and efforts are documented in writing. It shall be the goal of DeWitt Army Hospital to use appropriately both the formal and informal approach in the QAP. Documentation of the QA efforts/studies shall be reflected in all committee minutes effective 1 January 1981. Follow up and monitoring activities also shall be reflected in the minutes to determine the extent of improved patient care and/or the need for additional monitoring or QA studies. There shall be no specific number of studies required. However, committees have the responsibility to

This Memorandum supersedes MEDDAC Memorandum 40-401 dated 10 October 1980.

22 December 1980

conduct QA activities that are problem-focused on an ongoing basis.

Each clinical discipline (professional staff) will review the patient care it provides. Results/findings of each department on QA matters will be communicated in a written report to the Chief, Professional Services (CPS) on a quarterly basis or more frequently as directed by the CPS.

Each administrative department will review its operation to determine if any QA studies are deemed appropriate. Departmental or interdepartmental QA studies will be initiated and reported by the administrative departments on an Ad Hoc basis at the discretion of the administrative department head. An annual summary of all QA studies accomplished or underway will be forwarded to the Executive Officer prior to December of each year by the administrative department heads.

Department chiefs and committees will cooperate in conducting interdepartmental or other QA studies as directed by the Executive Committee. In addition, the CPS (for clinical studies) or the Executive Officer (for administrative studies) may task department chiefs or committee chairmen to conduct QA studies. In any case a record shall be maintained by the Executive Committee of all proposed, completed, and rejected QA studies. The findings (or reasons for rejection of the study) shall be documented as a matter of record for review by the JCAH or other authorized inspecting body. Follow up monitoring to document improvement in patient care/clinical performance shall also be directed by the Executive Committee in order to insure that modifications needed to enhance the quality of care have been accomplished.

Hospital Continuing Health Education (CHE) Programs will respond to QA information so as to address areas where knowledge deficiencies are noted by the QA studies. Documentation of such CHE Programs shall be forwarded to the CPS by department chairmen who initiate the needed session or CHE Programs. This documentation may be a part of the quarterly written reports to the CPS.

To the maximum extent possible QA activities shall minimize duplication of effort. Consideration should be taken of the potential benefit of a proposed study when compared to the cost (time or other resources) of conducting the study.

#### 5. Responsibilities.

a. The Commander, USDAH is recognized as the delegated and ultimate authority to represent the governing body (OTSG) at the local level. As such, he holds the ultimate responsibility for Quality Assurance Activities within the MEDDAC. Thus, he shall make all final determinations of the extent, if any, to which outside aids (consultants or voluntary review bodies, for example) shall be used in QA activities to identify and/or assess problems.

b. The Chief, Professional Services (CPS) is responsible to the commander for the conduct and implementation of the QA Program and for compliance with the JCAH QA standards and the HSC directives on QA matters. The CPS is responsible for the coordination of all QA activities.

22 December 1980

Hospital Memo 40-91

c. The executive Officer (XO) is responsible to the commander to insure that the QAP is cost effective.

d. All department chiefs and committee chairmen are responsible to the CPS for the implementation and conduct of an effective QAP within their respective departments and/or committees.

(1) Interdepartmental QA studies (proposed). Appendix A specifies the format to be used in submitting a proposal for an interdepartmental study. A department chief or a committee chairman may initiate a proposal for a QA study by using the format shown at Appendix A. In addition, any other personnel assigned to USDAH may initiate a proposal for a QA study by completing the QA Study Proposal (OF) and by submitting it through departmental or committee channels. These will be forwarded to the HEC, XO or CPS. If disapproved for study, the reason(s) will be documented for review by the JCAH or other authorized inspecting body.

(2) Reports on QA Studies Conducted. Appendix B specifies the format to be used in reporting on Quality Assurance Studies. This format will be used for studies done within a department and for interdepartmental studies. Committees may elect to briefly summarize a problem, solution and follow up action in the committee minutes if resolution of the problem can be determined easily (see paragraph 7a(1)). Committees are encouraged to use the format at Appendix B when feasible and appropriate. The Executive Committee shall determine which problem focused formal and/or informal studies should be initiated. In addition, the CPS may direct QA studies in the administrative areas. Department chairmen may direct QA studies within their departments or in cooperation with another department(s).

6. Administration/Coordination of the QAP. The Hospital Executive Committee shall insure that the QAP is implemented in an ongoing manner as required by JCAH. The Hospital Executive Committee shall also insure that the QAP is reappraised at least annually. The reappraisal shall result in the identification of "components of the Quality Assurance Program that need to be instituted, (shall) assure that the program is ongoing, comprehensive, effective in improving patient care/clinical performance, and conducted with cost efficiency." (JCAH 1981 Standard, pp 53-4).

The QA Committee shall consist of the membership shown at Appendix C. The flow of QA information for committees and departments is shown at Appendix D. Relevant feedback information should be channeled from the Executive Committee to department chiefs and on to chairmen of committees so that the QAP is comprehensive, integrated, and continuous.

#### 7. Implementation.

a. Methodology. The QAP will be committee/department oriented. Each committee/department will initially be required to review the QA standard, 1981 JCAH Accreditation Manual for Hospitals, and this MEDDAC Memorandum.

(1) Committee minutes/report format will make a statement by separate paragraph (entitled QUALITY ASSURANCE) to the effect that a QA problem was/was not identified by that committee. When a QA problem is identified, a brief summary of

22 December 1980

the problem and proposed solution or method of investigation will be included for subsequent review by the Hospital Executive Committee. This paragraph will also show documentation, evidence of follow up, action reference previous problems.

(2) All committee reports ~~will be submitted~~ to the Hospital Executive Committee for review, evaluation and coordination of QA matters. The Chief, Professional Services in coordination with the Executive Officer will establish and periodically update priorities with regard to the order in which inter-departmental problems should be assessed. The Executive Committee will direct comprehensive studies of problems to affected committees, activities, departments, and divisions and will assign responsibility for problem investigation and resolution. The format shown at Appendix A (Proposed QA Study) may be used for this purpose or the Executive Committee may give general guidance on the known or suspected problem and may direct those assigned to prepare a report (Appendix B) based on their investigation and findings.

(3) The Executive Committee will direct appropriate follow up action through its committee review process. The Hospital Executive Committee will monitor problem resolutions at least once during the subsequent quarter and during the annual review.

(4) The Hospital Executive Committee will review and evaluate the QAP annually during December beginning in December 1981. During the annual review, this QA Memorandum will be updated and/or revised. Documentation of the annual reassessment will consist of a list of problems identified during the past year and a summary statement as to the program's impact on improving clinical performance and patient care. The above documentation will be made a part of the minutes of the December Hospital Executive Committee meeting. The Hospital Executive Officer and Chief, Professional Services will develop the problem list in advance of the QAP annual review.

B Problem Identification There are no specific numerical requirements with regard to QA problems DeWitt Army Hospital should identify annually. The annual goal of DeWitt Army Hospital will be to identify and resolve a minimum of one QA problem per hospital committee, with the exception of the Medical Library Committee, the Accreditation Committee, and the Health Consumer Committee. The attached list of data sources (Appendix E) will assist in problem identification. Clinically valid criteria will be used to identify and assess problems. The QAP will focus primarily on:

- (1) Known or suspected problems (not limited to diagnoses or procedures).
- (2) Problems for which there are local solutions.
- (3) Problems that adversely impact on patient care or benefits.

C Problem Focused Approach. The problem focused approach is to be utilized for all QA studies. A problem is defined as any deviation from an expected desirable outcome or an area of concern. The problem focused approach is based on the assumption that to obtain maximal benefit from a QA study

emphasis must be focused on the resolution of known or suspected problems. In addition, due to resource limitations, priorities must be established so that those problems having the most immediate and adverse impact on patient care will be studied first.

(1) Problem Identification. Problem identification should be encouraged at all levels within the health care organization. Departmental and service chiefs will formulate and implement a mechanism for encouraging problem identification and submit problem lists with priority rationale to the Executive Committee for further prioritization. Problem identification is to be concurrent and ongoing.

(2) Problem Prioritization. A problem list will be formulated and maintained in order to insure that the hospital QAP encompasses all organizational elements and that resources are utilized for maximum benefit. The CPS, Director of Nursing, and XO will compile the problem lists and recommend study priorities. The Executive Committee will review the current list at each monthly meeting and will make changes as needed. Ordinarily the establishment of priorities for problem resolution shall be related to the degree of adverse impact on patient care that can be expected if the problem remains unresolved.

8. Other Quality Assurance Responsibilities. The Executive Committee will insure that the staff and all committees comply with JCAH evaluations required at the prescribed frequencies (see Appendix F).

9. Reporting Procedures. There is no specific number of QA studies which must be completed in order to comply with existing requirements. The HEC will monitor the entire QAP to insure that all organizational elements are involved. QA studies should use the format shown at Appendix A and Appendix B. Reports will be submitted along the organizational lines identified in the Quality Assurance Information Flow Chart (Appendix D). Alternate informal reporting pathways may be utilized where appropriate to facilitate the maximum exchange of information. All QA studies will be treated as sensitive, confidential information to be made available to authorized individuals with a legitimate "need to know". The CPS will coordinate all QA reporting activities. The HEC will serve as custodian of all QA reports and documents.

10. Problem Resolution. Resolution of problems may require any or all of the following:

- a. New revised SOP's
- b. Staffing changes
- c. Equipment/facility changes
- d. Functions/assigned privileges
- e. Education and/or training programs

Continuing Medical Education (CME) and/or training programs will be used as appropriate as a vehicle for resolving problems noted in QA studies or other QA activities. Documentation of CME relevant to QA matters will be accomplished through committee minutes and/or departmental channels as appropriate.

22 December 1980

## 11. Self Assessment of QA. (See Self Assessment Matrix (as of Sep 1980) - Appendix G.)

a. The Executive Committee will insure that QA information (input and feedback) is shared in an appropriate manner with other committees and/or departments in order to facilitate communication on QA matters that may result in improvements to care and/or the operation of DeWitt Army Community Hospital.

b. The Executive Committee will review the Self Assessment Matrix at least quarterly to determine which committees may be combined or made sub-committees of another committee in order to avoid or reduce duplication of efforts by those committees.

c. Additionally, the Executive Committee will review the Self Assessment Matrix at least quarterly to insure that the flow of information and other aspects of the Matrix meet the spirit and intent of current JCAH requirements. Recommended changes should be communicated to the committee(s) involved.

## 12. References and Authority.

a. AR 40-66, Chapter 9, "Quality Assurance"

b. JCAH Accreditation Manual for Hospitals, 1981

c. MEDDAC Memo 15-1, MEDDAC Committees, Boards, Councils, and Conferences, 9 October 1980

d. MEDDAC Policy No. 40-401, Quality Assurance Plan, 22 Apr 80 (Ft Meade MEDDAC)

e. Ltr, Subj Implementation of the New JCAH Standards on Quality Assurance, 22 Feb 80 (HSOP-PR)

AHDCM-AR

FOR THE COMMANDER:

  
MARGARET A. MAGGIO  
1LT, MSC  
Adjutant

DISTRIBUTION:

A

# DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is The Adjutant General Center.

REFERENCE OR OFFICE SYMBOL

SUBJECT

Proposed Quality Assurance Study (Subject of Study)

TO CPS

XO or Executive Committee

FROM

DATE

CMT 1

1. Problem: (State briefly)
2. How Identified: (Department, committee, complaints, etc.)
3. Objective(s) of Study:
4. Criteria: (Examples: JCAH Standards, SOP's, AR's, Local staff consensus or opinion, audit, etc.)
5. Resources Required:
  - a. Personnel (List recommendations of personnel to conduct study)
  - b. Time (Estimate the time needed to conduct study and report findings)
  - c. Equipment/Supplies (Estimate costs, if applicable)
  - d. Other (List other departments involved and list other pertinent resource costs not previously identified)
6. Recommended Priority: (Within department/hospital or other, Discuss impact if problem is not studied)
7. Other Comments: (If any)

Chief, Department or Committee

TO

FROM CPS

XO or Executive Committee

DATE

CMT 2

1. Study is approved/disapproved/deferred at this time. NOTE: IF APPROVED, THE PRIORITY ASSIGNED WILL BE NOTED. NOTE: IF STUDY IS DISAPPROVED OR DEFERRED THE REASON WILL BE STATED.
2. Chairman for study is \_\_\_\_\_, Others on committee are \_\_\_\_\_, etc.
3. Departments involved in study: (Specify)
4. Constraints: (Optional paragraph. Example: Constraints on resources)
5. Suspense date for completion of study is: (Specify)

APPENDIX A

CPS or XO

DA FORM 2496

1 FEB 62

REPLACES DD FORM 96, WHICH IS OBSOLETE.

# DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is The Adjutant General Center.

REFERENCE OR OFFICE SYMBOL

SUBJECT

Report on QA Study (Subject of Study)

TO CPS

FROM

DATE

CMT 1

XO or Executive Committee

1. Problem:

2. How Identified:

3. Objective(s) of Study:

4. Criteria:

5. Resources Required:

6. Priority:

NOTE: The first 6 paragraphs may be omitted if previously documented in a QA proposal. (See Appendix A) However, for studies done within a department and reported upon completion, all of the paragraphs will be shown.

7. Actions Taken: (Examples: Samples, audits, design of study, etc.)

8. Results: (What you found)

9. Corrective Action(s): (List actions taken, if applicable)

10. Recommended follow up actions to determine effectiveness:

a. Short range:

b. Long range: (Indicate time frames and/or frequencies of monitoring. Specify how follow up is to be accomplished.)

NOTE: Other paragraphs, if appropriate, may be added to those shown above.

\_\_\_\_\_  
Chairman of Study

TO

FROM CPS/XO/HEC

DATE

CMT 2

1. Identify plan for review and further action or follow up.

2. Establish suspense date if appropriate.

APPENDIX B

DA FORM 2496

REPLACES DD FORM 96, WHICH IS OBSOLETE.

TO CPS/XO/HEC

FROM

DATE

CMT 3

1. Provide details of follow up and/or monitoring. State if further monitoring should be continued and give recommendations (type of follow up, timing, frequency, etc.).
2. Other comments are optional.

---

Chairman of Study

TO

FROM

DATE

CMT 4

1. Prescribe plan for continuation of follow up or further investigation.
2. Note that problem has been resolved (or that no problem was found to exist upon investigation).

---

CPS/XO/HEC

B-2

QA COMMITTEE MEMBERS

Commander, US DeWitt Army Hospital

Executive Officer

Chief, Professional Services

Chief, Department of Nursing

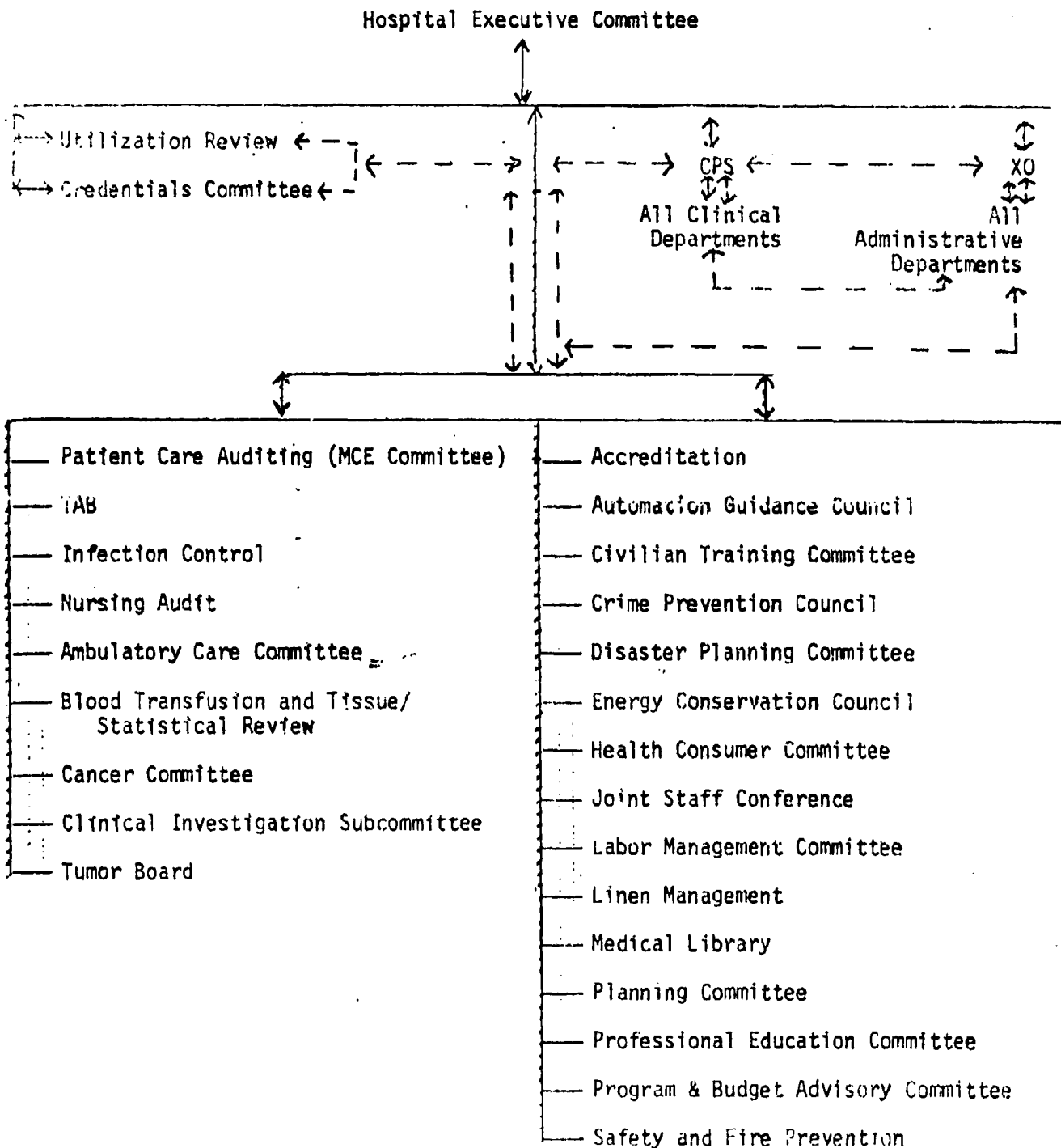
Administrative Resident (non voting member)

Secretary, MEDDAC Commander, Recorder (non voting)

NOTE: THE ABOVE MEMBERS ARE ALSO MEMBERS OF THE EXECUTIVE COMMITTEE

APPENDIX C

FLOW OF INFORMATION OF COMMITTEES  
(Effective 1 January 1981)



↔ Formal Flow  
- - - Informal Flow

APPENDIX D

## QA DATA SOURCES

Medical Records	Committee Findings
Pharmacy Prescriptions	Current Literature
Patient or Practitioner Profile Data	Medical Audits
Nursing Audits	Incident Reports
Risk Management Reports or Studies	Ancillary Services Requests and Reports
Financial Data	Patient Surveys or Comments
Letters of Complaint/Comment	Personnel Staff Interviews
Medical Statistics	Tissue Review
Blood Utilization Review	Safety Findings
Infection Control Findings	Laboratory Reports
Radiology Reports	Other Diagnostic/Clinical Reports
Utilization Review Studies	Internal Review Studies
IG Reports	JCAH Survey Recommendations
AAA Reports	Observations
Mortality/Morbidity Review	Review of Treatment
Profile Analysis	

APPENDIX E

## HOSPITAL WIDE FUNCTIONS REQUIRING MEDICAL STAFF PARTICIPATION

ACTIVITY	FUNCTION	FREQUENCY
Infection Control Committee (Infection Control Standard I)	Review infections within the hospital, cultures of personnel or the environment, results of any antimicrobial susceptibility/resistance trend studies, proposals and protocols for all special infection control studies conducted throughout hospital	Monthly Every 6 months
Multidisciplinary Safety Committee (Functional Safety and Sanitation Standard I)	Adopt, implement, and monitor a comprehensive, hospital-wide safety program	Monthly
Disaster Planning (mechanism not specified) (Functional Safety and Sanitation Standard III)	Plan for external and internal disasters, and rehearse and evaluate all drills	Twice annually once for external Quarterly for other shifts per hospital disaster plan
Utilization Review Program (Utilization Review Standard I)	Address overutilization, underutilization, and inefficient scheduling of resources  Delineate responsibilities for discharge planning	Annual review and evaluation of ongoing program

## SUPPORT SERVICE EVALUATION FUNCTIONS

PERTINENT CHAPTER	SOURCE OF EVALUATION	FREQUENCY
Anesthesia Services (Standard I)	Preestablished criteria	Quarterly
Dietetic Services (Standard VI)	Input of medical, nursing, and dietetic staffs  Outside sources if used  Medical record	Annual
Emergency Services (Standard VII)	Preestablished criteria  Use of medical record	Monthly  More frequently when patient turnover is high
Home Care Services (Standard V)	Patient records, both active and closed	Quarterly  Note: The standard also requires annual evaluation of program objectives by a multidisciplinary advisory committee and review of patient care plans not less frequently than 60 days
Hospital-sponsored Ambulatory Care Services (Standard VII)	Preestablished criteria  Use of medical record	Quarterly  More frequently when service is organized by specialty services or has outreach programs

## APPENDIX F

### SUPPORT SERVICE EVALUATION FUNCTIONS

PERTINENT CHAPTER	SOURCE OF INFORMATION	FREQUENCY
Nuclear Medicine Services (Standard I)	Review and evaluation of services provided as documented by director	Not specified
Pathology and Medical Laboratory Services (Standard I)	Review and evaluation of the quality and appropriateness of services rendered by the director	Not specified
Pharmaceutical Services (Standard III)	Participation by pharmacist in those aspects of the overall quality assurance program that relate to drug utilization and effectiveness	Not specified
Radiology Services (Standard I)	Review and evaluation of quality and appropriateness of radiologic services by director	Not specified
Rehabilitation Program Services (Standard I)	Preestablished criteria Involvement of medical staff and rehabilitation personnel	Quarterly
Respiratory Care Services (Standard VII)	Preestablished criteria Involvement of medical staff and respiratory care personnel Use of medical record	Quarterly
Social Work Services (Standard V)	Preestablished criteria Use of medical record Outside services if used	Twice annually
Special Care Units (Standard II)	Review and evaluation of the quality, safety, and appropriateness of the patient care within the unit as related to the findings of hospital and medical staff quality and safety assessment activities	Regularly by physician-director  Quarterly by multi-disciplinary committee (for a multipurpose special care unit)

### NURSING EVALUATION

ACTIVITY	FUNCTION	FREQUENCY
Department/Service Meetings (Nursing Services Standard II) (May be performed on department/service/unit level)	Identify problems; propose solutions  Consider findings from relevant nursing care and monitoring activities	At least six times a year
Review and Evaluation of Nursing Practice and Functions (Nursing Services Standard VII)	Examine the provision of nursing care and its effect on patients	At least quarterly
Reviewed by department/ service as a whole, by designated representative committee, or by nursing staff assigned to departments/services/units)	Review quality and appropriateness of care provided by nursing personnel who are hospital employees	

# MEDICAL STAFF EVALUATION, ASSESSMENT, AND MONITORING ACTIVITIES

ACTIVITIES	FUNCTION	FREQUENCY
Executive Committee (Medical Staff Standard II)	Receive and act upon reports and recommendations from medical staff committees, departments, services, and assigned activity groups	Monthly
Medical Staff Departments (Departmentalized staff) or Staff (Nondepartmentalized staff) (Medical Staff Standard III)	Review patient care and treatment  Maintain record that includes resultant recommendations, conclusions, and action instituted	Monthly
Designated Mechanisms of the Medical Staff (Medical Staff Standard IV)	Evaluate patient care through specific studies using preestablished criteria	As indicated
	Monitor elements of patient care identified in staff or department/ service rules and regulations	Continuously
Tissue Review Function (Surgical case review)	Perform review on cases in which a specimen (tissue or nontissue) was removed, as well as cases in which no specimen was removed	Monthly
Pharmacy and Therapeutics Function (See also Pharmaceutical Services Standards III - V)	Develop and survey pharmacy and therapeutic policies and procedures related to the selection, intrahospital distribution and handling, and safe administration of drugs  Evaluate and approve all protocols concerning use of investigational or experimental drugs	Quarterly or more frequently
Medical Record Function (See also Medical Record Services Standards I - III)	Review medical records for timely completion, clinical pertinence, and overall adequacy for quality assurance activities	Quarterly or more frequently
Blood Utilization Review	Review blood transfusions for proper utilization with proper attention to use of whole blood versus component blood elements  Evaluate blood use, including a review of the amount of blood requested, amount used, and amount of wastage	Quarterly or more frequently
Antibiotic Usage Review	Establish criteria for prophylactic and therapeutic use of antibiotics in problem areas and review departures from these criteria	Ongoing usage assessment

SECRETARY OF THE ARMY: CAMPBELL

(n) Course closed

(b) HP 11.5, (c) 11.5, 11.5, 11.5

These conditions are placed to 127 for review.

- Completion
- Chief of Executive Officer
- Chief Operating Officer
- Chief Financial Officer
- Director
- EEO Committee or Affirmative Action Officer
- Equal Opportunity Counsel
- Human Resources

Personal report	(1) 1 copy
Personal staff	(1) 1 copy
Core, existing data	(1) 1 copy
Force records	(1) 1 copy
Question reports	(1) 1 copy
Utilization review	(1) 1 copy
Do not know	(1) 1 copy

## 111

QUESTIONS		Hospital Executive Committee		Patient Care Auditing (Medical Evaluation)		Credentials Committee		Therapeutic Agents Board		Infection Control		Nursing Audit (Info Pending)		Ambulatory Care Committee		Blood Transfusion & Tissue/Statistical Review		Cancer Committee		Medical Investigation subcommittee		Utilization Review Board	
1. Is the function performed by an individual or committee?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2. Who is primarily responsible for the function?	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch	Ch
3. Is there a written description or procedure for the function?	Yes	Not all	Yes	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
4. What data sources are needed to perform this function?	Other C Spits	HM	Form, etc	TR, etc	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM	HM
5. Are procedures, clinically valid criteria, used?	Yes	Yes	Yes	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
6. Is a purpose of the function to identify problems? Are important ones identified?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Does the responsible individual or committee recommend or implement action?	Implement	N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8. Is there monitoring to determine effectiveness of action?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9. Do you know the results of the function reported? With whom are they shared?	Ch	HBC	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C	Exec C
10. Is the function evaluated routinely?	?	Yes by HBC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

These committees send minutes to HBC for review.

C committee  
Ch Chief of Staff  
HM Hospital Medical  
HBC Hospital Board  
Exec C Executive Committee  
HBC Hospital Board  
HBC Hospital Board

MR medical record  
HBC Hospital Board  
Ch Chief of Staff  
HM Hospital Medical  
HBC Hospital Board  
Exec C Executive Committee  
HBC Hospital Board  
HBC Hospital Board

●

ASSIGNMENT QUESTIONS		GPCR		Energy Conservation Task Group Committee		MSC/AMSC/VC Continuing Education Committee		NCO Advisory Council		Professional Staff Executive Conference		Soldier of the Month Board	
1. Is the function performed by an individual or committee?	C	BOH		C		C		C		C		C	
2. Who is routinely responsible for the function?	Chairman	Chairman		Chairman		CSM		CPS		CSM			
3. Is there a written description or procedure for the function?	Yes	Yes	Yes	Yes	Yes	EO	Yes	Yes	Yes				
4. What data sources are needed to perform this function?	Incident report	Various	Zone	Various									
5. Are procedures established, critically valid criteria used?	Yes	N/A	?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Is a purpose of the function to identify problems? Are important ones identified?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
7. Does the responsible individual or committee recommend or implement action?	Yes	Yes	Implement	Yes	Yes	Yes	Yes	BOH	Yes	Yes	Yes	Yes	Yes
8. Is there monitoring to determine effectiveness of action?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9. To whom are the results of the function reported? With whom are they shared?	C SGT DEPCA CPR, CFS	CO ALL	CDR Officers involved	NCOs & CDRs	CDR HQ/Regt Cdr	I							
10. Is the function evaluated routinely?	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

These earnings paid under to SAC for 1964.

Director  
 Regional Administrative Office  
 Chicago, Illinois  
 Director, FBI  
 Washington, D.C.  
 Hospital Executive Committee  
 Infectious Control  
 Department

1. I have not heard  
 2. of any other  
 3. persons who  
 4. have been  
 5. identified as  
 6. being in  
 7. contact with  
 8. the subject  
 9. of this  
 10. report.

G-3

D - 30, 10 - Ann - Et Pelvair

APPENDIX B  
PROPOSED QUALITY ASSURANCE STUDY

# DISPOSITION FORM

For use of this form, see AR 340-18; the presenting agency is The Adjutant General Center.

<b>REFERENCE OR OFFICE SYMBOL</b>	<b>SUBJECT</b> Proposed Quality Assurance Study (Subject of Study)
-----------------------------------	---

<b>TO</b> CPS XO or Executive Committee	<b>FROM</b>	<b>DATE</b>	<b>CMT 1</b>
--	-------------	-------------	--------------

1. Problem: (State briefly)
2. How Identified: (Department, committee, complaints, etc.)
3. Objective(s) of Study:
4. Criteria: (Examples: JCAH Standards, SOP's, AR's, Local staff consensus or opinion, audit, etc.)
5. Resources Required:
  - a. Personnel (List recommendations of personnel to conduct study)
  - b. Time (Estimate the time needed to conduct study and report findings)
  - c. Equipment/Supplies (Estimate costs, if applicable)
  - d. Other (List other departments involved and list other pertinent resource costs not previously identified)
6. Recommended Priority: (Within department/hospital or other. Discuss impact if problem is not studied)
7. Other Comments: (If any)

\_\_\_\_\_  
 Chief, Department or Committee

<b>TO</b>	<b>FROM</b> CPS XO or Executive Committee	<b>DATE</b>	<b>CMT 2</b>
-----------	--	-------------	--------------

1. Study is approved/disapproved/deferred at this time. NOTE: IF APPROVED, THE PRIORITY ASSIGNED WILL BE NOTED NOTE: IF STUDY IS DISAPPROVED OR DEFERRED THE REASON WILL BE STATED.
2. Chairman for study is \_\_\_\_\_ Others on committee are \_\_\_\_\_, etc.
3. Departments involved in study: (Specify)
4. Constraints: (Optional paragraph. Example: Constraints on resources)
5. Suspense date for completion of study is: (Specify)

APPENDIX A
\_\_\_\_\_

DA FORM 2496 1 FEB 82
REPLACES DD FORM 96, WHICH IS OBSOLETE.

APPENDIX C  
REVISED QUALITY ASSURANCE PLAN

DEPARTMENT OF THE ARMY  
Headquarters, US Army Medical Department Activity  
Fort Belvoir, Virginia 22060

Memorandum  
No. 40-91

1 March 1982

Medical Services  
QUALITY ASSURANCE PLAN

1. **Purpose.** The purpose of this memorandum is to establish a written plan that will serve as basis for a comprehensive, fully integrated, problem-focused approach to a Quality Assurance (QA) Plan for US Army Medical Department Activity, Fort Belvoir, Virginia.

2. **General.** The overall goal of the Quality Assurance Program (QAP) is to demonstrate this MEDDAC's comprehensive and integrated approach to quality assurance. The principal objective of the QAP is to facilitate the ongoing identification and assessment of problems associated with clinical performance and the delivery of health care with the intent of improving such care to an optimal level within available resource constraints.

3. **Scope.** The QAP involves all organizational activities that are designed to foster or evaluate health care. It includes all departments, disciplines, practitioners, ancillary personnel, and administrative personnel assigned or attached to the MEDDAC, Fort Belvoir. Health care providers will participate in peer review and all patient care processes will be subject potentially to evaluation.

4. **Responsibilities.**

a. The MEDDAC Commander is recognized as the delegated and ultimate authority to represent the governing body (OTSG) at the local level. As such, he holds the ultimate responsibility for quality assurance activities within the MEDDAC.

b. The Executive Officer is responsible for administrative actions in support of the QA Plan and for insuring the availability of resources necessary to carry out the provisions of said plan.

c. The Chief, Professional Services will serve as chairman of the QA Coordinating Committee. He has the authority to direct such actions as are deemed appropriate to achieve the goal of the QAP.

d. Division/department/activity chiefs, to include the OIC's of Fort A. P. Hill and Vint Hill Farms Station Health Clinics, are responsible for implementing the procedures outlined in paragraph 5 below.

e. The QA Coordination Committee (see organizational chart at Annex A) will be responsible for the following:

(1) Overseeing all aspects of the QAP, to include reviewing current QA activities, setting priorities on MEDDAC-wide QA actions, and directing actions to be taken in resolving identified QA problems.

\*This Memorandum supersedes MEDDAC Memorandum 40-91, dated 22 December 1980.

1 March 1982

(2) Reviewing and evaluating the QA Plan annually during the month of December. During the annual review, this memorandum will be updated and/or revised as necessary. Documentation of the annual reassessment will include a list of problems identified during the past year and a summary statement as to the program's impact on improving clinical performance and health care. The above documentation will be made a part of the minutes of the December QA Coordinating Committee meeting.

f. All MEDDAC personnel must abide by the procedures established herein, remain cognizant of any problem which has or could have a negative impact on the delivery of optimal feasible health care, and communicate said problems to the QA Coordinating Committee.

#### 5. Procedures.

a. Each division/department/activity chief will establish a QAP to assess health care and identify QA problems within their own areas of interest and/or in other areas of the MEDDAC. The functioning of this program will be based on guidance provided by this memorandum and will be outlined in an internal SOP. Copies of a sample QA SOP (Annex B) and minutes of a departmental QA meeting (Annex C without inclosures) are attached. Departmental QA meetings will be conducted on a regular, but not less than quarterly, basis. Copies of minutes of departmental QA meetings will be routed to the QA Coordinating Committee. Intradepartmental problems identified for further study will be reported to the QA Coordinating Committee by completing Sections I through III of MEDDAC(CSD) Form 522 (see Annex D). QA problems thought to extend beyond the preview of individual departments will be recorded in Section I of MEDDAC(CSD) Form 522 and forwarded to the QA Coordinating Committee for action.

b. The committees and support services listed at Annex E will forward an information copy of their minutes/periodic reports to the QA Coordinating Committee. Applicable JCAH evaluation criteria and reporting frequency is specified at Annex F. Committee minutes/report format will include a paragraph summarizing QA issues addressed. QA problems identified for further study will be reported as specified in paragraph 5a above.

c. An individual identifying a potential QA problem may report the problem in one of two ways:

(1) To his/her department/division chief for inclusion into the departmental QA meeting or

(2) Directly to the Chairman of the QA Coordinating Committee (CPS). Format for this report will be as described in paragraph 5a above.

d. Upon receipt of MEDDAC(CSD) Forms 522 by the QA Coordinating Committee, identified problems will be reviewed, evaluated, and prioritized with regard to the order in which assessment will take place. The QA Coordinating Committee will direct comprehensive integration of problems to all interested departments/divisions/activities and assign responsibility for problem resolution. The QA Coordinating Committee will direct appropriate follow-up action through its committee review process and will periodically monitor problem resolution. All problem resolutions will be evaluated during

1 March 1982

MEDDAC Memo 40-91

the annual review. Administrative operation of the QA Coordinating Committee will be governed by the provisions of MEDDAC Memorandum 15-1.

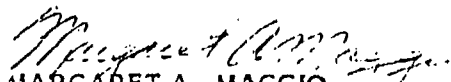
6. References.

- a. AR 40-66, Chapter 9, "Quality Assurance"
- b. JCAH Accreditation Manual for Hospitals
- c. MEDDAC Memorandum 15-1, MEDDAC Committees, Boards, Councils, and Conferences

HSXA-AR

FOR THE COMMANDER:

6 Incl  
as

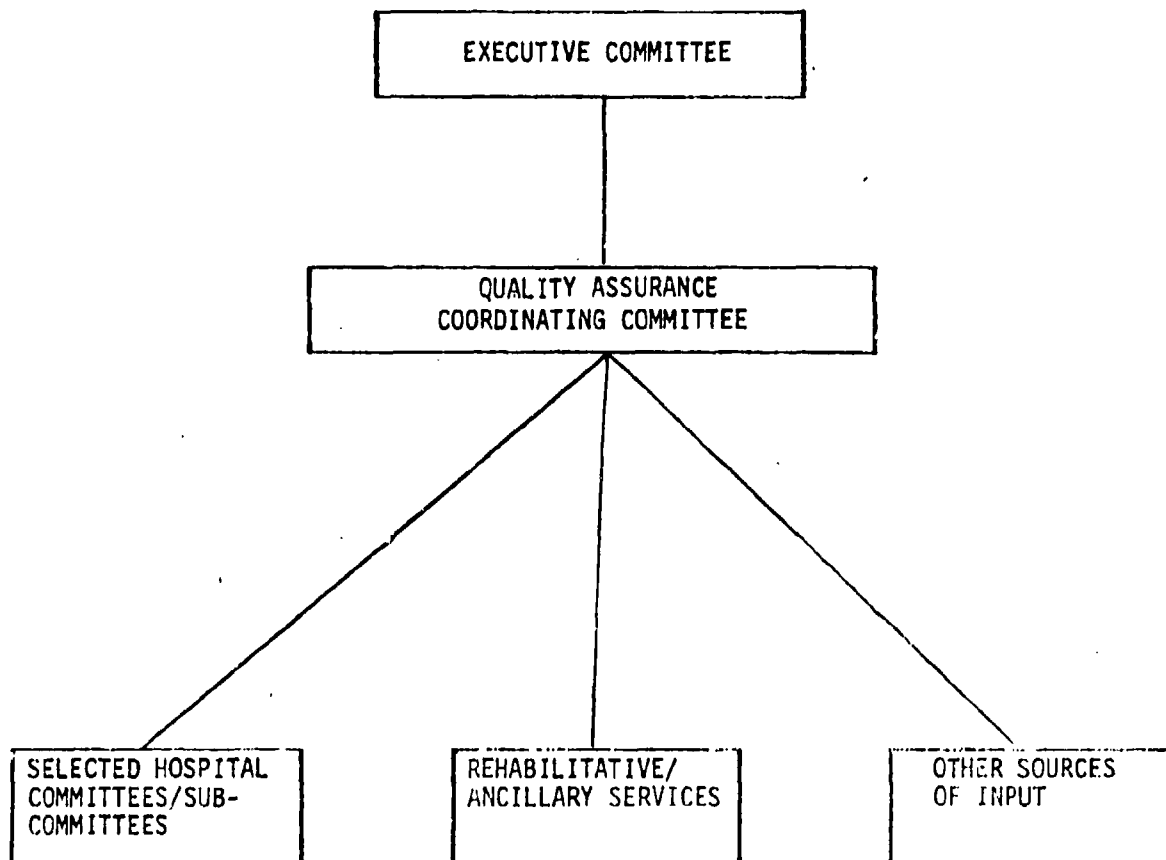
  
MARGARET A. MAGGIO  
CPT, MSC  
Adjutant

DISTRIBUTION:

A

## ANNEX A

### I. Organization



### II. COMPOSITION OF QA COORDINATING COMMITTEE

Chief, Professional Service (CPS)	Chairman
Risk Manager	Member
Nursing QA Coordinator	Member
Chief, Inpatient Care Branch	Member
Administrative Resident	Member
Secretary to the CPS	Recorder

DEPARTMENT OF THE ARMY  
Headquarters, US Army Medical Department Activity  
Fort Belvoir, Virginia 22060

HSXA-FP

1 December 1981

Quality Assurance Program for the Department of Family Practice

1. **Purpose.** To establish guidelines for reviewing and evaluating the quality and appropriateness of inpatient and outpatient services within the department.
2. **Scope.** Family Practice Inpatient Services, Family Practice Clinic, DeWitt Army Community Hospital, Fort Belvoir, Virginia.
3. **Responsibility.** It is the responsibility of the Chief, Department of Family Practice, through the Family Practice Clinic Director and the Inpatient Faculty Coordinator to conduct a review and evaluation of the quality and appropriateness of the inpatient and outpatient services given within the department on a monthly basis. This will be accomplished by the auditing of patient medical records by pre-established criteria.
4. **General.** The criteria to be utilized in the review will be of four types or categories.
  - a. Ongoing daily usage of Inclosure 1 titled "Medical Record Audit" examining the resident physicians' capability in his/her ongoing medical care of patients. This will include the thoroughness of the record, the analytical sense, the reliability and the efficiency of the care delivered. This form will be utilized to evaluate the ongoing, overall continuity and quality of patient care rendered by the resident physician.
  - b. Quarterly audits by disease category; matching residency physicians to disease category and utilizing the Family Practice Computer Management System in identifying patient category type. Audits planned for calendar year 1982-83 will include "diabetes" and "hypertension" and will match resident physician to these categories (see Inclosure 2 and 3).
  - c. Monthly audits of pre-selected patient types and disease categories for all physicians (staff and residents) preselected by the department. These records will be audited by pre-selected criteria on a daily or weekly basis by staff physicians.
  - d. Monthly audits of completed inpatient records of patients hospitalized on the Family Practice Inpatient Services. These will include medical, pediatric, obstetrical and gynecologic patient categories. Audits will be conducted once monthly at the Patient Care Auditing/Quality Assurance Departmental Meeting. Records will be reviewed by criteria listed in Inclosure 4 and charts/records reviewed will be coordinated through the Patient Administration Division, DeWitt Army Community Hospital by the Inpatient Staff Coordinator.
5. **Reporting.** Reporting of all audit results of all categories will be the responsibility of the Chief, Department of Family Practice. Results will be reported to the Patient Care Auditing/Utilization Committee and to the Quality Assurance Committee on a monthly basis.
6. **Problem Areas.** Problems identified in the above described audits will be so recorded utilizing the "Quality Assurance Problem Worksheet" (Inclosure 5). Problems uncovered, actions proposed and undertaken, and the results of re-auditing will be reported to the Hospital Quality Assurance Committee with this form.

William J. Meinert  
LTC, MC  
Chief, Department of Family Practice

DEPARTMENT OF THE ARMY  
DeWitt Army Community Hospital  
Family Practice Center  
Fort Belvoir, Virginia 22060

MEDICAL RECORD AUDIT

Patient's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Physician's Name: \_\_\_\_\_

Auditor's Name: \_\_\_\_\_

Is chart legible: ☐ Yes ☐ No

1. Thoroughness:

YES

NO

a. Complete Data Base

\_\_\_\_\_

\_\_\_\_\_

b. Problem list complete and up-to-date

\_\_\_\_\_

\_\_\_\_\_

c. Plan written for each significant problem

\_\_\_\_\_

\_\_\_\_\_

d. Patient profile in chart

\_\_\_\_\_

\_\_\_\_\_

e. Medication list complete and up-to-date

\_\_\_\_\_

\_\_\_\_\_

f. Overall rating of thoroughness of record

☐ Excellent

☐ Satisfactory

☐ Borderline

☐ Unacceptable

2. Analytical Sense:

a. Clear, cogical treatment plan of acceptable quality for each problem

\_\_\_\_\_

\_\_\_\_\_

b. Proper consultations for problems

\_\_\_\_\_

\_\_\_\_\_

c. Is each problem supported by adequate data, and the need for further data recognized

\_\_\_\_\_

\_\_\_\_\_

d. Abnormal findings noted in chart.(explained)

\_\_\_\_\_

\_\_\_\_\_

e. Overall Rating:

☐ Excellent

☐ Satisfactory

☐ Borderline

☐ Unacceptable

Inclosure 1 to ANNEX B

B-2

3. Reliability:

YES

NO

a. Were problem plans implemented \_\_\_\_\_

b. Were additional tests and procedures indicated  
actually performed \_\_\_\_\_

c. Overall Rating:

\_\_\_ Excellent

\_\_\_ Satisfactory

\_\_\_ Borderline

\_\_\_ Unacceptable

4. Efficiency:

a. Were paramedical personnel utilized, if necessary \_\_\_\_\_

b. Do flow sheets exist if necessary to deal with  
complicated, inter-related problems \_\_\_\_\_

c. Did physician time spent seem appropriate  
for problem stated \_\_\_\_\_

d. Were "inappropriate" or "unnecessary" lab  
or x-ray studies performed \_\_\_\_\_

e. Overall Rating:

\_\_\_ Excellent

\_\_\_ Satisfactory

\_\_\_ Borderline

\_\_\_ Unacceptable

# DIABETIC CHART AUDIT

Patient: \_\_\_\_\_

Chart # \_\_\_\_\_

Physician: \_\_\_\_\_

1. Problem List
2. Medication List
3. Documentation
  - a. Ophthalmology consult
  - b. Podiatry consult \*
  - c. Instruction in insulin usage or oral hypoglycemics if given \*
  - d. Dietary consult \*

\* or documentation of being performed by primary physician
4. Follow-up visit ever 2-3 months if on insulin or hypoglycemics; every 6-12 months if diet controlled
5. Basic laboratory data: Renal function test, lytes, CBC, urine, urine culture
6. Recurrent laboratory data: FBS (lower than 200), urine S/A
7. P.E.: Fundus, BP, C.V., Skin Peripheral Sensation, DTR

Complete	Incomplete

Overall evaluation

Acceptable ☐

Unacceptable ☐

Comments:

Evaluation Physician: \_\_\_\_\_

MD Form 342  
18 Dec 80

Inclosure 2 to ANNEX B

B-4

MEDICAL RECORDS AUDIT--HYPERTENSION

Patient \_\_\_\_\_ Date \_\_\_\_\_  
 Social Security # \_\_\_\_\_ Physician \_\_\_\_\_  
 Evaluator \_\_\_\_\_

Check if complete

\_\_\_ Problem List  
 \_\_\_ Medications Recorded  
 \_\_\_ Symptomatology checklist  
 Physical Exam  
 \_\_\_ Ophthalmoscope exam once/year  
 \_\_\_ Cardiovascular: heart rate, rhythm,  
 murmur, peripheral pulses, presence/  
 absence of bruits

Periodic Laboratory

\_\_\_ Electrolytes: q 6-12 mos  $K^+$  q 2-3 wks  
 p start or change or diuretic  
 \_\_\_ ECG: q year or pra  $\bar{c}$  SM's of CHF  
 \_\_\_ Uric Acid: q 2-3 wks p start or  
 change of TX

Other:

Comments:

Inclosure 3 to ANNEX B

Check if complete

Laboratory and Consultation  
 \_\_\_ Ophthalmology consult  
 \_\_\_ CBC  
 \_\_\_ UA  $\bar{c}$  C&S  
 \_\_\_ Electrolytes Na, K, Cl,  $CO_2$   
 \_\_\_ Fasting SMA-12  
 \_\_\_ Serum creatinine  
 \_\_\_ Triglycerides  
 \_\_\_ EKG  
 \_\_\_ CXR  
 \_\_\_ 24 Hour Urinary creatinine  
 \_\_\_ if abn, serum creatinine  
 protein \_\_\_ if abn, UA (hx of  
 renal ds, protein or RBC's in urine)  
 \_\_\_ 17 OH & 17 KS \_\_\_ if Cushing's,  
 signs & symptoms  
 \_\_\_ VMA \_\_\_ if postural hypo-  
 tension, dizziness, tachycardia, dia-  
 phoresis  
 \_\_\_ Hypertensive crisis over 30 years old  
 \_\_\_ Renal arteriogram, and renins if  
 kidney size appropriate

Acceptable

B-5

Unacceptable

OBSTETRICAL PATIENT CARE AUDIT

Date \_\_\_\_\_

Chart # \_\_\_\_\_

Auditing Physician \_\_\_\_\_

- 1) Patient ID Data
- 2) EDC, LMP, or corrected EDC recorded in chart
- 3) Appropriate data for each visit recorded (wt, BP, urine, etc)
- 4) Lab Data on chart -  
Type, Rh, Hct, Hgb, PAP smear, Serology
- 5) Review of Systems Analysis
- 6) Past Medical History and Family History
- 7) Previous obstetrical record
- 8) Complete P.E.
- 9) Pelvic Exam with Obstetrical Prognosis
- 10) Chart legible

COMPLETE	INCOMPLETE
YES	NO

Comments:

Overall: \_\_\_\_\_ Acceptable \_\_\_\_\_ Unacceptable

Inclosure 4 to ANNEX B

B-6

**QUALITY ASSURANCE PROGRAM  
PROBLEM ASSESSMENT WORKSHEET**

Problem No. \_\_\_\_\_

Date \_\_\_\_\_

**SECTION I - IDENTIFICATION**

1. Statement of Problem:
  2. Source of Data:
  3. Committee/Office/Individual Identifying Problem:
- 

**SECTION II - ASSESSMENT**

Date \_\_\_\_\_

1. Identify Applicable Criteria:
  2. Feasible Resolutions:
  3. Recommended Resolution:
  4. Resources Required:
- 

**SECTION III - EXECUTIVE REVIEW**

Date \_\_\_\_\_

1. Action Taken:
2. Priority: 

_____	Immediate - Resolve within 30 days - review monthly.
_____	Delayed - Resolve within 6 months - review monthly.
_____	Long Range - Resolve within 5 years - review annually.
_____	Deferred - Resolution not feasible with current resources - review annually.

Inclosure 5 to ANNEX B

B-7

**SECTION IV - IN PROGRESS REVIEWS**

1. Status:

Date \_\_\_\_\_

2. Status:

Date \_\_\_\_\_

3. Status:

Date \_\_\_\_\_

4. Status:

Date \_\_\_\_\_

5. Status:

Date \_\_\_\_\_

**SECTION V - RESOLUTION**

Statement of Resolution:

Date \_\_\_\_\_

**SECTION VI - FOLLOW-UP/REVIEW**

Date \_\_\_\_\_

Inclosure 5 to ANNEX B

B-3

ANNEX C



HSXA-FP

DEPARTMENT OF THE ARMY  
HEADQUARTERS, U. S. DEWITT ARMY HOSPITAL  
FORT BELVOIR, VIRGINIA 22060

16 December 1981

SUBJECT: Minutes of the Department of Family Practice Patient Care Auditing  
and Quality Assurance Committee Meetings

TO: Chairman  
Medical Care Evaluation & Quality Assurance  
DeWitt Army Community Hospital  
Fort Belvoir, Virginia 22060

1. The meetings were held on 9 December 1981 at 1230 hours in the Main  
Conference Room.

2. Members Present:

CPT John H. Black, Chairman, Patient Care Auditing Committee  
LTC William J. Meinert, Chairman, Quality Assurance Committee

Staff Members:

CPT Robert Campbell  
CPT William McCarberg  
CPT Mark Hillard

Resident Members:

CPT Steve Daugherty, 1st year  
CPT Janet Spitzer, 1st year  
CPT Steven Reisman, 1st year  
CPT Laurence Sharp, 1st year  
CPT Neal Baillargeon, 2nd year  
CPT Mark Beckerman, 2nd year  
CPT Eric Brewner, 2nd year  
CPT Douglas Cambier, 2nd year  
CPT John Reasoner, 2nd year  
CPT John Alves, 3rd year  
CPT Gerald De Tata, 3rd year  
CPT John Pascal, 3rd year  
CPT Douglas Phillip, 3rd year

Members Excused or Absent:

Major John Fogarty, Staff  
Major R. B. Stith, Staff  
CPT Joseph FitzHarris, Staff  
CPT Robert Rende, 3rd year  
MAJ Thomas Ely, 2nd year  
CPT Wayne Jonas, 1st year  
CPT James McGhee, 1st year

HSXA-FP

SUBJECT: Minutes of the Department of Family Practice Patient Care Auditing  
and Quality Assurance Committee Meetings

3. Old Business:

None. This is the first meeting held. Family Practice Inpatient Service was established 19 October 1981.

4. New Business--Chart Review.

a. Reviewed 25 completed inpatient records to include obstetrical, gynecologic, medicine and pediatric type admissions. The following deficiencies were noted in these records.

(1) Discussed the chart of a 45 year old WM admitted to the ICU with the diagnosis of shortness of breath, wheezing and possible pulmonary embolus. A deficiency existed in the record in that a specialized procedure was not coded on the cover sheet, "VQ scanning", and the diagnosis of "Medical observation for possible pulmonary embolus, suspected, not proven" was not listed on the cover sheet. Record returned to PAD for additional coding.

(2) Discussed the chart of a 2 y/o WM whose parent removed the child from the hospital against medical advice for the problem of wheezing. No mention is made of this on the cover sheet--returned to PAD for additional coding.

(3) Discussed the record of a 1 y/o BM, admitted with potential child neglect. No discharge instruction sheet could be found in the record. This was considered a major deficiency in view of the CPMCT and medico-legal aspects of the case. Chart was returned to the physician for appropriate notation as to disposition and followup.

(4) Discussed the record of a 25 y/o BF, admitted to the ICU with asthma. No mention was made in the chart of the results of several blood gases drawn during the admission. The necessity of comment by the physician who orders lab, x-ray tests in the progress notes was emphasized.

(5) Discussed the record of a 28 y/o WF admitted for an incomplete abortion who underwent an elective D&C. No tissue pathology report was in the chart after 1 month. This was considered inappropriate and the chart was returned to PAD for filing of the tissue result.

(6) Discussed the record of a 61 y/o WM admitted to the CCU on a "R/O MI protocol". No mention is made of the results of a CXR done on admission. Returned to physician for correction or addendum to the record.

(7) Discussed the chart of a 48 y/o BM, admitted to ICU with asthma. Again, no mention of a CXR done on admission.

(8) Discussed the chart of a 24 y/o WF, postpartum, augmented with pitocin after 5 hours of SRON. There was no mention as to the indications for augmentation or whether a staff OB-GYN person was consulted regarding the drug usage. Chart returned for addendum to notations.

HSXA-FP

SUBJECT: Minutes of the Department of Family Practice Patient Care Auditing  
and Quality Assurance Committee Meetings

b. Current Inpatient Chart Review: Census on the Service numbered four at the time of the audit. All charts had been reviewed and various deficiencies were corrected at the time of the review by the physician in charge of the patient's care.

c. There were no recorded deaths in the Family Practice Inpatient Service since 19 October 1981.

d. Complications: No iatrogenic complications could be found or were recorded in patient care during the review.

e. Outpatient Chart Review: Formal Outpatient Chart Review has been in effect within the Family Practice Clinic as of 1 December 1981. The audits will follow the format illustrated in the SOP titled "Quality Assurance Program for the Dept of Family Practice", dated December 1981 (Incl #1). Audits planned for December will utilize the "Medical Record Audit" daily (Incl #2) on selected Resident charts. In addition, a generic audit will be conducted on all the Family Practice obstetrical records utilizing Incl #3, "Obstetrical Patient Care Audit." Results of all these audits and statistics gathered will be reported in the January minutes of this Committee

5. Quality Assurance Program--Problem Assessment.

a. The entire QA Program of the Department was explained and clarified to members of the department, as well as the utilization of the Problem Assessment Worksheet.

b. The first QA Problem identified from the Inpatient Records Audit was the high percentage of charts (30%) which were identified as deficient because of the physician's lack of documentation regarding pertinent lab, x-ray and other data. The feeling of the majority of the members was that "if a lab test is important enough to be ordered, some mention of its results should be made in the progress notes". This statement was expanded to include other facets of the patient's care--to include the results of consults, physical therapy and respiratory therapy. See Incl #4 for recommendations.

6. Meeting adjourned at 1335 hours.



WILLIAM J. MEINERT, M.D.  
LTC, MC  
Chairman, Quality Assurance Committee

ANNEX D

QUALITY ASSURANCE PROGRAM  
PROBLEM ASSESSMENT WORKSHEET

Date \_\_\_\_\_

SECTION I-IDENTIFICATION

- A. Statement of Problems:
- B. Source of Data:
- C. Committee/Office/Individual Identifying Problem:
- D. Recommended Individual/Committee/Activity to investigate Problem:

SECTION II-ASSESSMENT

Date \_\_\_\_\_

- A. Identify Applicable Criteria:
- B. Feasible Resolutions:
- C. Recommended Resolutions:
- D. Resources Required:

SECTION III-Executive Review

Date \_\_\_\_\_

- A. Action Taken:
- B. Priority:
  - \_\_\_\_\_ Immediate-Resolve within 30 days-review monthly.
  - \_\_\_\_\_ Delayed-Resolve within 6 months-review monthly.
  - \_\_\_\_\_ Long Range-Resolve within 5 years-review annually.
  - \_\_\_\_\_ Deferred-Resolution not feasible with current resources-review annually.

SECTION IV-IN-PROGRESS REVIEWS

A. Status: Date \_\_\_\_\_

B. Status: Date \_\_\_\_\_

C. Status: Date \_\_\_\_\_

D. Status: Date \_\_\_\_\_

E. Status: Date \_\_\_\_\_

SECTION V-RESOLUTION

Statement of Resolution: Date \_\_\_\_\_

SECTION VI-FOLLOW-UP/REVIEW

Date \_\_\_\_\_

## **ANNEX E**

### **I COMMITTEES MONITORED BY QA COORDINATING COMMITTEE**

ACCREDITATION

AMBULATORY PATIENT CARE  
EMERGENCY MEDICAL SERVICES

BLOOD TRANSFUSION & TISSUE

CANCER

CLINICAL INVESTIGATION/HUMAN USE

CREDENTIALS COMMITTEE

INFECTION CONTROL  
ANTIBIOTIC UTILIZATION

MEDICAL CARE EVALUATION  
CARDIO-PULMONARY RESUSCITATION  
CRITICAL CARE  
DISCHARGE PLANNING

MORBIDITY AND MORTALITY

RABIES CONTROL BOARD

RISK MANAGEMENT

SAFETY AND FIRE PREVENTION

THERAPEUTIC AGENTS BOARD

TUMOR BOARD

### **II. ACTIVITIES/SERVICES MONITORED BY QA COORDINATING COMMITTEE**

ANESTHESIA  
CHN (HOME CARE EVALUATION)  
DEPARTMENTAL QUARTERLY QA MEETINGS  
DIETETICS  
DON QA PROGRAM  
FORT A. P. HILL HEALTH CLINIC  
PATHOLOGY  
PATIENT REPRESENTATIVE (MONTHLY REPORTS)  
PHARMACY  
PHYSICAL THERAPY  
RADIOLOGY  
RESPIRATORY THERAPY  
SOCIAL WORK  
VINT HILL FARMS STATION HEALTH CLINIC

E-1

# ANNEX F

## INVENTORY OF RELATED QUALITY ASSESSMENT & CONTROL REQUIREMENTS\*

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
1. Anesthesia	Quarterly	<ul style="list-style-type: none"> <li>Monitoring to reflect the scope of hospital's anesthesia services</li> <li>Include review of all categories of anesthesia personnel</li> <li>Not limited to morbidity/mortality review</li> <li>Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>Should be part of overall hospital QA program</li> <li>Medical record requirements specified (p.6)</li> <li>Involve use of preestablished criteria</li> </ul>
2. Dietetic	Annually	<ul style="list-style-type: none"> <li>Review nutritional care of inpatients, outpatients, home care, and outside contracted services, as appropriate</li> <li>Representative sample</li> <li>Quality control mechanisms for specified processes such as nutritional assessment, dietary instruction, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Should be part of overall hospital QA program</li> <li>Shall use medical record and preestablished criteria</li> <li>Review shall include contributions from medical, nursing, and dietetic staffs</li> <li>Medical record requirements specified (p.27)</li> </ul>
3. Emergency	Monthly (Recommended more frequently if rapid turnover of physician staffing)	<ul style="list-style-type: none"> <li>Particular attention to DOAs, deaths within the ED and deaths within 24 hours of admission from the ED</li> <li>Representative sample</li> <li>Quality control mechanisms for specified processes such as recall mechanisms, medical record review, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Shall use medical record and preestablished criteria</li> <li>Medical record requirements specified (pp.32,33)</li> </ul>

\*Excerpts from Joint Commission on Accreditation of Hospitals, Accreditation Manual for Hospitals, 1981 Edition.

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
4. Functional Safety and Sanitation	Continuous program effort, monthly committee meetings	<ul style="list-style-type: none"> <li>• Comprehensive hospital-wide program</li> <li>• Review to include patients, hospital staff and visitors</li> <li>• Policy/procedure development, coordination, review</li> <li>• Incident reporting system</li> <li>• Liaison with infection control</li> </ul>	<ul style="list-style-type: none"> <li>• Produce safe characteristics and practices; eliminate or reduce hazards to the extent possible</li> <li>• Include review of all pertinent records and reports</li> <li>• Methods for measuring of safety program and analysis to determine effectiveness</li> </ul>
5. Governing Body (GB)	Continuous	<ul style="list-style-type: none"> <li>• Assure a comprehensive hospitalwide QA program</li> <li>• Credentialing and privileges delineation systems/policies</li> </ul>	<ul style="list-style-type: none"> <li>• Through CEO, ensure that administrative assistance necessary to facilitate objective analysis of quality care</li> <li>• GB should specify the nature and frequency of submission of reports required by medical staff QA activities</li> </ul>
6. Home Care	<ul style="list-style-type: none"> <li>• Annual Program Evaluation</li> <li>• Quarterly review of medical records</li> </ul>	<ul style="list-style-type: none"> <li>• Review to include direct and outside contracted services, if used</li> <li>• Both active and closed case medical records review</li> <li>• Representative sample</li> <li>• Case plan review at least every 60 days</li> </ul>	<ul style="list-style-type: none"> <li>• Should be part of overall hospital QA program</li> <li>• Multidisciplinary advisory committee must include (1) physician, (1) RN and other professionals involved in program</li> <li>• Evaluate effectiveness of objectives</li> <li>• Review to include accessibility, timeliness, and need of services</li> <li>• Medical record requirements specified (p.61)</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
7. Hospital Sponsored Ambulatory Care	<ul style="list-style-type: none"> <li>• Biannually</li> <li>• Recommended more frequently if organized by service, have outreach programs, or rapid physician turnover</li> </ul>	<ul style="list-style-type: none"> <li>• Review to include entire scope of services and outside contracted services, if used</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• May be part of clinical service/department review mechanisms</li> <li>• Shall use medical record and preestablished criteria</li> <li>• Medical record requirement specified (p.68)</li> </ul>
8. Infection Control	<ul style="list-style-type: none"> <li>• Bimonthly committee meetings</li> <li>• Continuous data collections, surveillance and policy review</li> </ul>	<ul style="list-style-type: none"> <li>• Hospitalwide</li> <li>• Review to include all patients and personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Standard criteria for identifying and reporting infections</li> <li>• Determine infection rates</li> <li>• System for data collection, reporting, antibiotic review and evaluation and follow-up action</li> <li>• Continuous review and evaluation of all hospital aseptic, isolation and sanitation techniques</li> <li>• Required participation by medical staff, nursing, administration, and when available, microbiology section of lab</li> <li>• Medical record requirement specified (p.74)</li> </ul>
9. Medical Staff (pp.105-108)  a. Special Patient Care Evaluation Differentials	<ul style="list-style-type: none"> <li>• As indicated to assess potential problems</li> </ul>	<ul style="list-style-type: none"> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct specific studies, as indicated using pre-established criteria</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
f. Anti-biotic Usage	Continuous Assessment	<ul style="list-style-type: none"> <li>Should include review of inpatients, ambulatory and emergency patients</li> <li>Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>Should include prophylactic and therapeutic use for all categories of patients</li> <li>Criterion-based review in problem areas</li> <li>Clinical review as well as statistical/prevalence studies</li> <li>Control of usage based on assessment studies</li> </ul>
g. Other - patient related professional activities	As Indicated by specific review activity	<ul style="list-style-type: none"> <li>As Indicated by the specific review activities</li> <li>Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>Participation in hospital-wide activities including planning, safety, etc.</li> <li>Patient care evaluation in ED, OPD, home care</li> <li>Role in care of emotionally ill, alcoholics, drug abusers clarified</li> </ul>

**Note:** Other required medical staff functions include utilization review, (see p.22), monitoring of clinical policies and procedures, mortality review, etc. In addition medical staff quality control includes use of assessment findings for credentials, privileges delineation and continuing education purposes among other corrective action options.

10. Nuclear Medicine	<ul style="list-style-type: none"> <li>Unspecified evaluation activities</li> <li>Continuous safety surveillance</li> </ul>	<ul style="list-style-type: none"> <li>Review and evaluate quality, safety and appropriateness of service</li> </ul>	<ul style="list-style-type: none"> <li>Documented review and evaluation of policies/procedures and committed activities</li> <li>Medical record requirement specified (p.114)</li> </ul>
11. Nursing	Quarterly	<ul style="list-style-type: none"> <li>Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>Should be integrated when possible with other hospital QA activities</li> <li>Based on written criteria</li> <li>Include nursing care personnel who are not hospital employees</li> <li>Variety of methods can be used for review/evaluation</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
b. Tissue (surgical case) Review	Monthly	<ul style="list-style-type: none"> <li>• Include inpatients and outpatients</li> <li>• Review to include cases where specimens were and were not recovered</li> <li>• Review all cases with major preoperative/postoperative discrepancies</li> </ul>	<ul style="list-style-type: none"> <li>• Review shall include indications for surgery</li> <li>• May use screening mechanisms with pre-determined criteria</li> </ul>
c. Pharmacy and Therapeutics	Quarterly	<ul style="list-style-type: none"> <li>• Development and surveillance of policies and practices, including drug utilization</li> <li>• Advice on available drugs, formulary changes, updating formulary, drug reactions review, and experimental drug use approval</li> </ul>	<ul style="list-style-type: none"> <li>• In cooperation with pharmacist and other disciplines as required</li> </ul>
d. Medical Record	Quarterly	<ul style="list-style-type: none"> <li>• Review to include inpatient, hospital-sponsored ambulatory care, ED and home care records</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• Review for timely completion, clinical pertinence, overall adequacy for use in quality assessment activities, and as medico-legal documents</li> <li>• Required nursing and medical record staff participation</li> </ul>
e. Blood Utilization	Quarterly	<ul style="list-style-type: none"> <li>• Review to include inpatient, hospital-sponsored ambulatory care, ED and special care patients</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• May be performed through retrospective patient care evaluation, medical record review, or other patient-specific review mechanism</li> <li>• Review for proper utilization of blood transfusions</li> <li>• Shall review whole vs. component blood elements</li> <li>• Shall review all actual or suspected reactions</li> <li>• Should review amount requested, used, and wastage</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
12. Pathology and Medical Laboratory Services	Unspecified	<ul style="list-style-type: none"> <li>• Participation in hospital QA program</li> <li>• Servicewide quality control program to assure reliability of laboratory data</li> </ul>	<ul style="list-style-type: none"> <li>• Director of Pathology and medical laboratory assure departments' participation in overall QA program</li> </ul>
13. Pharmaceutical Services	Unspecified	<ul style="list-style-type: none"> <li>• Include departmental/service/individual prescriber review</li> <li>• Representative sample</li> <li>• Intradepartmental quality control strategies such as drug profile, policies/procedures, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Should be part of overall hospital QA program specific to drug utilization and effectiveness</li> <li>• May include determining usage patterns by clinical department/physicians</li> <li>• Assist in establishing drug use criteria</li> </ul>
14. Radiology	Unspecified	<ul style="list-style-type: none"> <li>• Review to include inpatient, outpatient, and ED services</li> </ul>	<ul style="list-style-type: none"> <li>• Review and evaluate quality and appropriateness of services</li> <li>• Medical record requirements specified (pp.159-160)</li> </ul>
15. Rehabilitation Programs/Services including, as applicable, any specialized services provided including Physical Therapy, Occupational Therapy, etc.	Quarterly	<ul style="list-style-type: none"> <li>• Review to include inpatient, outpatient and ED services</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic review and evaluation of quality and appropriateness</li> <li>• Predetermined criteria</li> <li>• Participation by medical staff and rehabilitation personnel</li> <li>• Medical record requirements specified (pp.164 - 165)</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
16. Respiratory Care	Quarterly	<ul style="list-style-type: none"> <li>• Review includes in-patients, outpatients, home care patients, and outside services, if used</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• Physician-director responsibility</li> <li>• Should be performed within overall hospital QA program</li> <li>• Review and evaluate quality, appropriateness, and effectiveness</li> <li>• Shall use medical record and preestablished criteria, including indications for use, effectiveness of treatment, and adverse effects requiring discontinuance of treatment</li> <li>• Shall include contributions of medical staff and respiratory care services</li> <li>• Particular attention to highly utilized services</li> <li>• Medical record requirements specified (pp. 175, 176)</li> </ul>
17. Social Services	Biannually	<ul style="list-style-type: none"> <li>• Review includes in-patients, outpatients, home care patients and outside services, if used</li> <li>• Representative sample</li> </ul>	<ul style="list-style-type: none"> <li>• Should be performed within the overall hospital QA program</li> <li>• Review and evaluate quality, appropriateness and effectiveness</li> <li>• Includes all categories of patients</li> <li>• Shall use medical record and preestablished criteria (Indications for social work intervention)</li> <li>• Particular attention to discharge planning and timeliness of emergency services</li> <li>• Medical record requirements specified (p. 180)</li> </ul>

STANDARD	FREQUENCY	SCOPE/FOCUS	CONTENTS
18. Special Units (multi-purpose or specific-purpose)	Quarterly for multi-purpose units; unspecified for specific purpose units	<ul style="list-style-type: none"> <li>• Representative sample for all units</li> </ul>	<ul style="list-style-type: none"> <li>• Physician-director responsibility</li> <li>• Should be part of overall hospital QA program</li> <li>• Quality, safety and appropriateness evaluated on regular basis</li> <li>• Written criteria for admission to and discharge from special care units</li> </ul>

APPENDIX D  
CORNEAL ABRASION STUDY

TO: MAJ Thomas Hoffer MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

FROM: MAJ James Benvenuti MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

DATE: 1 December 1981

SUBJECT: PRELIMINARY Q/A CRITERIA FOR CHART REVIEW OF CORNEAL ABRASION:  
MINIMUM DATA TO BE INCLUDED IN RECORD

- \_\_\_ 1. (If patient is verbal): some description is given of recent onset of eye pain or feeling a "foreign body" or "something in the eye"; +/- photophobia; mention is made of (any/no change in visual acuity; and some mention is given to related etiologies such as "followed a concussion or scratch to face" or "wearing contact lenses", etc)
- \_\_\_ 2. Objective confirmation of corneal abrasion is shown by stating either one of the following:
  - \_\_\_ a. Observation of corneal light reflection using oblique side moving illumination ("flashlight test") shows abrasion (or abrasion shadows cast upon iris); or
  - \_\_\_ b. Sterile fluorescein strip reveals corneal abrasion which was not evident on "flashlight test"; chart mentions that greenish speckled pattern is not dendritic branching (which would suggest Herpes keratitis).
- \_\_\_ 3. Evaluation using binocular magnification and lid eversion excludes foreign bodies remaining and excludes penetrating or perforating injuries into eye.
- \_\_\_ 4. The pertinent normal eye findings are included, such as: visual acuity, PRERLA, EOM intact, fundoscopic exam WNL, cornea "otherwise clear" and visual fields WNL to gross confrontation.
- \_\_\_ 5. Pertinent negatives are mentioned, such as:
  - \_\_\_ a. No corneal anesthesia, pigmentations, diffuse cloudiness or radiations into sclerae.
  - \_\_\_ b. No purulent discharge associated with eye pain, OR TRICHIASIS.
- \_\_\_ 6. Treatment plan is specified: including firm eye-patches and a 3-5 day course of antibiotic ophthalmic solution.
- \_\_\_ 7. Follow-up is specified; including reappointment within 24-36 hours for reexamination.
- \_\_\_ 8. Follow-up is arranged until either complete resolution of the problem or referral for complications such as infectious keratitis.

*James P. Benvenuti MAJ/HA*

TO: MAJ Thomas Hoffer, MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

FROM: MAJ James Benvenuti, MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

DATE: 7 January 1982

SUBJECT: REVISED Q/A AUDIT OF ETR "CORNEAL ABRASIONS"

1. Review of Emergency Room Log for the past six months yielded 90 cases listed as corneal abrasion: 5 of these cases were eliminated because other diagnoses were listed on the record, such as "conjunctivitis".
2. Of the remaining 85 records, 32 were available in our clinic and were audited.
3. Using the Hoffer Corneal Abrasion Criteria, the following deficiencies were noted:
  - a. 12.5% = No mechanism of injury noted;
  - b. 40.6% = No subjective symptom listed;
  - c. 21.8% = No visual acuity noted;
  - d. 46.8% = No fluorescein test cited;
  - e. 0.0% = No eye inspection noted;
  - f. 9.3% = Diagnosis not given as "Corneal Abrasion";
  - g. 65.6% = Treatment Plan did not list topical antibiotic;
  - h. 50.0% = Treatment Plan did not list pressure patch;
  - i. 34.3% = Follow-up did not specify return within 24 h4-48 h
4. These deficiencies do not necessarily represent poor quality of care: for instance, although the fluorescein test was not cited, it probably was routinely done by the Emergency Room staff. It is also noteworthy that the criteria were only recently developed and disseminated: except for the recent few months, the staff had no guidelines provided. Nevertheless, providing a reminder to the staff of these criteria might improve quality assurance at this hospital.

May James Benvenuti MC/USA

APPENDIX E  
FOLLOW-UP CORNEAL ABRASION STUDY

TO: COL Jose Ossorio, MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

FROM: MAJ James Benvenuti, MC/USA  
DeWitt Army Hospital  
Ft. Belvoir, VA 22060

DATE: 13 January 1982

SUBJECT: Q/A ONGOING AUDIT OF ETR "CORNEAL ABRASIONS"

1. On 7 January 1982, an audit of Emergency Room records for the past six months yielded 32 available records of "Corneal Abrasion"; the following deficiencies were noted:
  - a. 12.5% = No mechanism of injury noted;
  - b. 40.6% = No subjective symptom listed;
  - c. 21.8% = No visual acuity noted;
  - d. 46.8% = No fluorescein test cited;
  - e. 9.3% = Diagnosis not given as "Corneal Abrasion";
  - f. 65.6% = Treatment Plan did not list topical antibiotics;
  - g. 50.0% = Treatment Plan did not list pressure patch;
  - h. 34.3% = Follow-up did not specify return within 24-48 hrs.
  - i. 0% = No eye inspection noted.
2. By 1 December, 1981, the above Hoffer Criteria had been developed and disseminated to the staff. During the following month of December, 19 charts of patients treated for "Corneal Abrasion" were collected and audited. The following deficiencies were noted:
  - a. 10.5% = No mechanism of injury noted;
  - b. 36.8% = No subjective symptom listed;
  - c. 36.8% = No visual acuity noted;
  - d. 36.8% = No fluorescein test cited;
  - e. 0% = Diagnosis not given as "Corneal abrasion";
  - f. 10.5% = Treatment Plan did not list topical antibiotics;
  - g. 21.0% = Treatment Plan did not list pressure patch;
  - h. 36.8% = Follow-up did not specify return within 24-48 hrs.
  - i. 0% = No eye inspection noted.
3. Using the Chi-Square Test for analysis, statistically significant improvement is documented for the following criteria:
  - f. Treatment Plan to list topical antibiotic; and
  - g. Treatment Plan to list pressure patch.
4. Because of the remaining high rate of deficiencies, a re-publication & dissemination of the Hoffer Criteria for Corneal Abrasion is recommended - to include all involved staff.

*Mag James P Benvenuti, MC/USA*

APPENDIX F  
SURVEY DOCUMENT



APPENDIX G  
CONCERNED CARE FORM

# CONCERNED CARE COMMENTS

\*Please refer to back for Privacy Act Statement

TO: Patient Representative Office  
DeWitt Army Community Hospital  
Fort Belvoir, Virginia 22060



Let's Hear About \_\_\_\_\_

\_\_\_\_\_ Compliments: Staff member (military, civilian and volunteers) who are doing an outstanding job.

\_\_\_\_\_ Suggestions: An idea that would improve our care.

\_\_\_\_\_ Problems: Something to bring to our attention.

DATE: \_\_\_\_\_

(PLEASE PRINT)

NAME: \_\_\_\_\_

Sponsor's Social Security Number:

ADDRESS: \_\_\_\_\_

Telephone: \_\_\_\_\_

\_\_\_\_\_ zip code

APPENDIX H  
PATIENT REPRESENTATIVE MONTHLY REPORT

REFERENCE OR OFFICE SYMBOL	SUBJECT		
HSXA-CS	PRO Activities - March 1982		
TO CDR, MEDDAC	FROM P.R.O.	DATE 5 April 1982	CMT 1

1. The Patient Representative Office activities for March 1982 are presented for review. A matrix which lists the problem areas by clinic/service is attached. (Incl. 1)

2. Analysis of encounters:

	JANUARY	FEBRUARY	MARCH	
Information/Directions	391	432	498	45%
Followup with Patients	70	78	125	11%
Contact with Staff or Other Agencies	231	226	231	21%
Assistances	8	9	2	1%
Compliments	56	74	131	12%
Problems	109	73	117	10%
TOTAL	865	892	1104	100%

3. The P.R.O. received one hundred and thirty-one (131) compliments this month: Ward 4A (17), Ward 3B (17), Ward 4B (12), Family Practice (10), ETR (6), AMIC (5), Urology (5), Surgery Orientation (5), Ophthalmology (5), Surgery (4), Orthopedics (3), I. & D (3), OB/GYN (3) and Respiratory Therapy (3). The following areas received 2 compliments each: OR, Recovery, F Service, ICU, Internal Medicine and Neurology. Red Cross, Ward 3B, A & D, Anesthesiology, PRO, Med. Company, Housekeeping, PT, Refill Pharmacy, GMO Clinic, Occupational Health, CCU, and Cardiology received one compliment each.

4. Comments about the matrix (Incl. 1)

CENTRAL APPOINTMENTS: The complaints about this service have significantly decreased again this month. It is interesting to note the number of complaints regarding the phones in Family Practice and in Pediatrics.

ETR/TRIAGE: Poor communications resulted in at least 12 of these complaints this month.

INPATIENT: Three patients stated that the staff on Ward 4B are doing a good job, but they seem terribly overworked!!

No other trends were noted this month.

5. Case of the month:

PROBLEM #1: An 11 y.o. dependent son and his father arrived at the Orthopedic Clinic at approximately 0930 hours on a Thursday. They supposedly were referred by Quantico, but they had no appointment and no referral. PROBLEM #2: Orthopedics referred the patient to AMIC for a referral not thinking that AMIC doesn't see anyone less than 13 y.o. PROBLEM #3: AMIC referred the patient to Pediatrics where he was given a "routine" referral to Orthopedics. He returned to Orthopedics where he was told that he would need to make an appointment through CAS. The CAS intercom phones were out of order. PROBLEM #4: The CAS supervisor was making appointments in person, but the soonest appointment was for one month in advance. The patient's father felt that this was unsatisfactory so he returned to Pediatrics to have them change the referral from "routine" to "TODAY". He then returned to Orthopedics. PROBLEM #5: By this time, the emergency doctor in Orthopedics had been called to the Emergency Room. The patient and his dad were asked to wait, but they did not wish to do so. They left.

HSXA-CS  
PRO Activities - March

We could not determine if the patient was referred from Quantico or not. With the exception of Problem #2, the staff gave this patient the correct information about "the system" for being seen. Four hours later, however, the patient and his father left.... The dad said that he would followup with a formal complaint, but at this time, he has not.

6. Additional tasks managed by the P.R.O. during this month are:
  - a. provided new MEDDAC employees with a brief orientation to the Patient Representative Office,
  - b. attended Potomac Chapter Society of Patient Representatives Meeting at Washington Adventist Hospital in Takoma Park, and
  - c. shared job description, monthly report and records ideas with staff from Fort Rucker, Fort Lee, and Fort Leavenworth respectively.
7. If you have any comments or questions regarding the information that is present in this monthly report, please contact me at ext. 42890.

1 Incl.  
as

*Pam Duncan*  
PAMELA N. DUNCAN  
Patient Representative

DISTRIBUTION:

XO  
CPS  
C, Dept. of Family Practice  
C, Dept. of Medicine  
C, Dept. of Nursing (2)  
C, Dept. of Surgery  
C, Ambulatory Nursing Svc.  
C, CMHA  
C, CSD (3)  
C, Logistics  
C, EMS  
C, PAD  
C, Pathology  
C, Pharmacy  
C, Preventive Medicine  
C, Radiology  
Commander, 15th CSH  
Commander, MED. CO.  
Navy/MC Liaison  
OTC, VETS Health Clinic  
Admin. Resident  
C, Force Development  
C, Satellite Clinics

MONTH: MARCH 1982

-PATIENT PROBLEMS/COMPLAINTS-

TOTAL:

117

CLINIC/ACTIVITY	LACK OF CONCERNED CARE	WRONG OR INSUFFICIENT INFORMATION	LOST MEDICAL INFORMATION	PROBLEMS REGARDING POLICY	QUESTIONS REGARDING MEDICAL CARE	WAITING TIME	LACK OF APPTS	OTHER
GENIC/GMO	5	1			2		1	44
CAS	13	appt. conflicts 3		?????????		an intercom 1		no recording 2 rings 2 busy 4
DENTAL	3						3	rem cleanliness
DERMATOLOGY	1							busy phones 5
ETR/TRIAGE	15	3 wrong referrals		screening 1	4	2		add Fred 1
FAMILY PRACTICE	6	appt. conflict 1						clearers 1 parking 1
FOOD SERVICE	1							lost coat (42) food 40
GENERAL HOSPITAL	6			sticking 1 signs child abuse 1 funerary 1				pt. not called unkempt (42) "admission
INPATIENT	6	nursery 1		stiffing (42) 3				
INTERNAL MEDICINE	1							
LOGISTICS	2							
NEUROLOGY	1							
OB/GYN	6					4 appt. 1	3	
OPHTHALMOLOGY	1						1	
ORTHOPEDICS	2					2		
PAD	6		records 2	pre admissions 1 records 1		A&D 1		
PATHOLOGY	6				autopsy findings 1	test results 2		no pre samples clinical pt. 1
PEDIATRICS	25	2			2	test results 1		busy phones 18
PHARMACY	1			refills 1				1

MONTH: MARCH 1982 (continued) -PATIENT PROBLEMS/COMPLAINTS-

CLINIC/ACTIVITY	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	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APPENDIX I  
QA PROBLEM ASSESSMENT WORKSHEET

QUALITY ASSURANCE PROGRAM  
PROBLEM ASSESSMENT WORKSHEET

Date \_\_\_\_\_

SECTION I-IDENTIFICATION

- A. Statement of Problems:
- B. Source of Data:
- C. Committee/Office/Individual Identifying Problem:
- D. Recommended Individual/Committee/Activity to investigate Problem:
- 

SECTION II-ASSESSMENT

Date \_\_\_\_\_

- A. Identify Applicable Criteria:
- B. Feasible Resolutions:
- C. Recommended Resolutions:
- D. Resources Required:
- 

SECTION III-Executive Review

Date \_\_\_\_\_

- A. Action Taken:
- B. Priority:
- |                          |  |
|--------------------------|--|
| <input type="checkbox"/> | Immediate-Resolve within 30 days-review monthly.                         |
| <input type="checkbox"/> | Delayed-Resolve within 6 months-review monthly.                          |
| <input type="checkbox"/> | Long Range-Resolve within 5 years-review annually.                       |
| <input type="checkbox"/> | Deferred-Resolution not feasible with current resources-review annually. |

SECTION IV-IN-PROGRESS REVIEWS

A. Status: Date \_\_\_\_\_

B. Status: Date \_\_\_\_\_

C. Status: Date \_\_\_\_\_

D. Status: Date \_\_\_\_\_

E. Status: Date \_\_\_\_\_

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SECTION V-RESOLUTION

Statement of Resolution: Date \_\_\_\_\_

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SECTION VI-FOLLOW-UP/REVIEW

Date \_\_\_\_\_

APPENDIX J  
ONE SAMPLE ANALYSIS

I	X(I)	X(I+1)
1	16.0700	16.2200
3	15.6800	17.2500
5	17.1100	16.5900
7	16.1800	16.3000
9	16.0200	15.9500
11	16.5300	16.8900
13	16.3700	16.3800
15	16.2500	16.1100
17	16.4100	16.2500
19	15.8700	16.4100
21	16.1000	16.2000
23	16.6100	16.4800
25	16.7400	

# BASIC STATISTICS

\*\*\*\*\*

N = 25

STD ERROR OF THE MEAN= .07

MEAN = 16.3588

COEF OF VARIATION = 2.25%

VARIANCE = .1354

STANDARD DEVIATION = .3680

SKEWNESS = .6516

KURTOSIS = 3.2807

APPENDIX K  
PAIRED SAMPLE ANALYSIS

MAXIMUM DEGREE REGRESSION= 4

I	X(I)	Y(I)
1	86.0000	83.0000
2	71.0000	77.0000
3	77.0000	76.0000
4	68.0000	64.0000
5	91.0000	96.0000
6	72.0000	72.0000
7	77.0000	65.0000
8	91.0000	96.0000
9	70.0000	65.0000
10	71.0000	80.0000
11	88.0000	81.0000
12	87.0000	72.0000

BASIC STATISTICS

\*\*\*\*\*

MEANS, VARIANCES, CORRELATION

X MEAN= 79.0833

VAR(X)= 78.9924

Y MEAN= 77.1667

VAR(Y)= 107.6861

MINIMUM

MAXIMUM

68.0000

91.0000

64.0000

96.0000

RXY = .7344

2 TAIL t-TEST

H0:ABS(X(X)-X(Y))= 0

H1:ABS(X(X)-X(Y))# 0

t VALUE = .928

DF = 11

1- .975, 11, 1 = 2.202

DO NOT REJECT H0 AT .050 LEVEL  
OF SIGNIFICANCE

t = .9281 DF = 11

PROB > t = .9281 = 1.000

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APPENDIX L  
CHI SQUARE TEST

CHI-SQUARE '=' EXPECTED VALUES

K= 6

I	OBSERVED FREQUENCY	EXPECTED FREQUENCY
1	25.00	20.00
2	17.00	20.00
3	15.00	20.00
4	23.00	20.00
5	24.00	20.00
6	16.00	20.00

CHI-SQUARE= 5.0000  
 K= 6  
 DF= 5  
 PROB CHI-SQUARE > 5.0000  
 = .4159

CHI-SQUARE '\*' EXPECTED VALUES

I	O(I)	E(I)
1	8.0000	9.6000
2	50.0000	46.7500
3	47.0000	51.8500
4	56.0000	54.4000
5	5.0000	8.2500
6	14.0000	9.1500

K= 6

I	OBSERVED FREQUENCY	EXPECTED FREQUENCY
1	8.00	9.60
2	50.00	46.75
3	47.00	51.85
4	56.00	54.40
5	5.00	8.25
6	14.00	9.15

CHI-SQUARE= 4.8444  
 K= 6  
 DF= 5  
 PROB CHI-SQUARE > 4.8444  
 = .4352

APPENDIX M  
R X C CONTINGENCY TEST

CHI-SQUARE R X C CONTINGENCY TABLE

CELL FREQUENCY

ROW 1 :	80	120
ROW 2 :	170	130

ROW 1 :	80	120
ROW 2 :	170	130

TOTALS:

COLUMN	TOTAL
C( 1 ) =	250
C( 2 ) =	250

ROW	TOTAL
R( 1 ) =	200
R( 2 ) =	300

OVERALL=	500
----------	-----

EXPECTED FREQUENCY

ROW 1:	
	100.00
	100.00

ROW 2:	
	150.00
	150.00

# OF EXP. FREQ.  $\leq 2$  = 0  
% EXP. FREQ.  $\leq 5$  = 0.00%

CHI-SQUARE = 13.3333  
CONTINGENCY COEFFICIENT =

.1612

DF= 1  
PROB CHI-SQUARE  $>$  13.3333  
= .0003

APPENDIX N  
TWO SAMPLE T-TEST

SAMPLE 1  
N = 10

I	X(I)
1	184.0000
2	22.0000
3	40.0000
4	129.0000
5	26.0000
6	47.0000
7	138.0000
8	42.0000
9	84.0000
10	173.0000

SAMPLE 2  
N = 12

I	Y(I)
1	192.0000
2	64.0000
3	235.0000
4	223.0000
5	66.0000
6	224.0000
7	41.0000
8	51.0000
9	152.0000
10	144.0000
11	68.0000
12	186.0000

N FOR 1 = 10  
1 MEAN = 88.5  
STD. DEV. FOR 1 = 62.304

N FOR 2 = 12  
2 MEAN = 137.166666667  
STD. DEV. FOR 1 = 75.083

t= 1.6325 DF= 20  
PROB t > 1.6325 = .0591

APPENDIX O  
ONE-WAY ANALYSIS OF VARIANCE

# ONE WAY ANALYSIS OF VARIANCE

## TRT # 1

93.00	50.00	55.00
76.00	94.00	86.00
75.00	80.00	67.00
70.00	90.00	85.00
74.00	87.00	69.00
90.00		

## TRT # 2

66.00	65.00	50.00
65.00	62.00	57.00
59.00	64.00	64.00
63.00		

TREATMENT #	1	OBS. #	VALUE
		1	93.00
		2	50.00
		3	55.00
		4	76.00
		5	94.00
		6	86.00
		7	75.00
		8	80.00
		9	67.00
		10	70.00
		11	90.00
		12	85.00
		13	74.00
		14	87.00
		15	69.00
		16	90.00

TREATMENT #	2	OBS. #	VALUE
		1	66.00
		2	65.00
		3	50.00
		4	65.00
		5	62.00
		6	57.00
		7	59.00
		8	64.00
		9	64.00
		10	63.00

TRT. #	N	MEAN	VARIANCE
1	16	77.5625	171.4625
2	10	61.5000	24.2778

## ANALYSIS OF VARIANCE

SOURCE/DF	SS	MS	F
TOTAL 25	4378.2		
TRTS 1	1587.7	1587.7	13.7
ERROR 24	2790.4	116.3	

DF NUM= 1

DF DEN= 24

F= 13.6556

PROB F &gt; 13.6556= .0011

BARTLETT'S TEST

DF= 1

CHI-SQUARE= 7.9111

PROB CHI-SQUARE &gt; 7.9111

= .0049

APPENDIX P  
TWO-WAY ANALYSIS OF VARIANCE

# TWO WAY ANALYSIS OF VARIANCE

R= 3

C= 3

N= 2

## ROW COLUMN OBSERVATIONS

1	1	3.00	3.00
	2	4.00	3.00
	3	3.00	4.00
2	1	6.00	4.00
	2	6.00	7.00
	3	8.00	5.00
3	1	3.00	4.00
	2	6.00	7.00
	3	5.00	6.00

## ROW COL CELL MEAN CELL VAR

1	1	3.000	0.000
	2	3.500	0.500
	3	3.500	0.500
2	1	5.000	2.000
	2	6.500	0.500
	3	6.500	4.500
3	1	3.500	0.500
	2	6.500	0.500
	3	5.500	0.500

## ROW MEANS:

ROW	MEAN
1	3.333
2	6.000
3	5.167

## COL MEANS:

COL	MEAN
1	3.833
2	5.500
3	5.167

OVERALL MEAN = 4.833

ANALYSIS OF VARIANCE

SOURCE/DF	SS	MS	F
TOTAL 17	44.5		
ROWS 2	22.3	11.2	10.6
COLS 2	9.3	4.7	4.4
RXC 4	3.3	0.8	0.8
ERROR 9	9.5	1.1	

APPENDIX Q  
MULTIPLE LINEAR REGRESSION

DATA SET 1:	I	X(I)
	1	13300.0000
	2	9300.0000
	3	120.0000
	4	6700.0000
(Y)	5	28.0000

DATA SET 2:	I	X(I)
	1	21000.0000
	2	11300.0000
	3	823.0000
	4	9300.0000
(Y)	5	24.0000

DATA SET 3:	I	X(I)
	1	16800.0000
	2	10700.0000
	3	771.0000
	4	8250.0000
(Y)	5	42.0000

DATA SET 4:	I	X(I)
	1	17300.0000
	2	11700.0000
	3	709.0000
	4	8300.0000
(Y)	5	29.0000

DATA SET 5:	I	X(I)
	1	13500.0000
	2	11700.0000
	3	836.0000
	4	9800.0000
(Y)	5	13.0000

DATA SET 6:	I	X(I)
	1	13016.0000
	2	9600.0000
	3	844.0000
	4	8100.0000
(Y)	5	9.0000

	1	18200.0000
	2	12200.0000
	3	893.0000
	4	10900.0000
(Y)	5	36.0000

DATA SET 8:	I	X(I)
	1	14300.0000
	2	10200.0000
	3	734.0000
	4	9500.0000
(Y)	5	24.0000

DATA SET 9:	I	X(I)
	1	18700.0000
	2	11100.0000
	3	835.0000
	4	9300.0000
(Y)	5	50.0000

DATA SET 10:	I	X(I)
	1	18300.0000
	2	9700.0000
	3	701.0000
	4	6800.0000
(Y)	5	68.0000

VAR	MEAN	VARIANCE
X( 1)	16441.6000.	
X( 2)	10750.0000.	
X( 3)	726.6000	49493.1556
X( 4)	8695.0000.	
X( 5)	32.3000	308.6778

# CORRELATION MATRIX

1	1.000		
2	.463	1.000	
3	.380	.586	1.000
4	.223	.796	.677
	1.000		
5	.560	-.093	-.028
	-.298	1.000	

MULTIPLE CORRELATION = .509

## ANALYSIS OF VARIANCE

SOURCE/DF	SS	MS	F
TOTAL 9	2778.1		
REG 4	1415.2	353.8	1.3
X( 1) 1	870.3	870.3	3.2
X( 2) 1	438.8	438.8	1.6
X( 3) 1	14.2	14.2	0.1
X( 4) 1	91.9	91.9	0.3
RESID 5	1362.9	272.6	

## COEFFICIENTS

I	B(I)	VARIANCE	TVALUE
0	27.046		
1	0.004	0.000	1.801
2	-0.003	0.000	-0.257
3	0.003	0.001	0.089
4	-0.005	0.000	-0.581

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